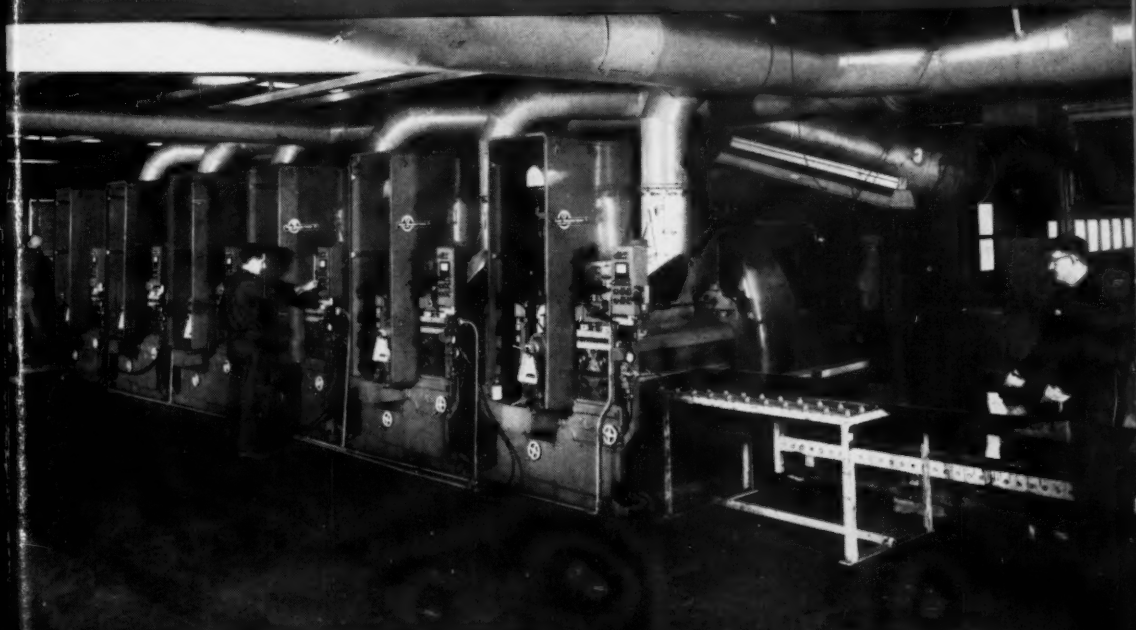
products finishing

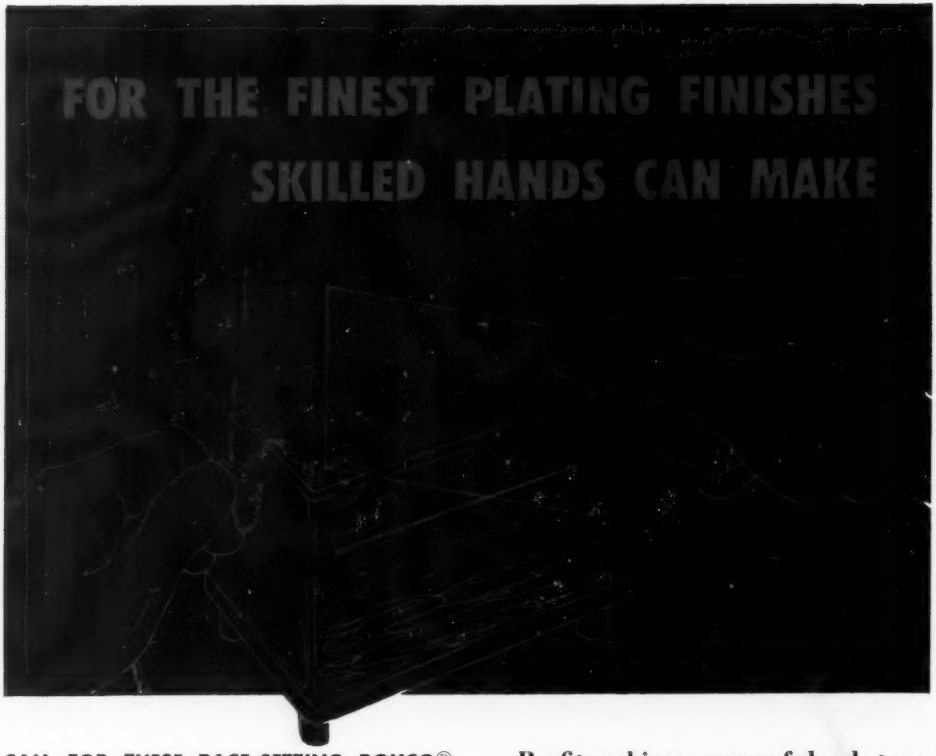
MAY 1959



Flat Polishing Specialists . . . . . Page 50

Flow Coating Fenders	Page 24
Testing Paint Finishes	Page 34
A.E.S. Convention Papers	Page 42
Plating on Molybdenum	Page 60
Table of Contents	Page 5

finishes on metal products



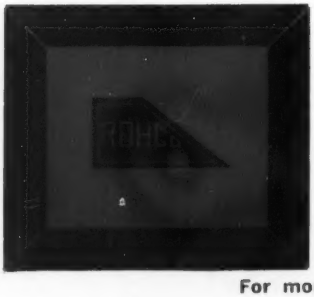
CALL FOR THESE PACE-SETTING ROHCO® PRODUCTS, *DISCOVERED AND CONTROLLED IN THE HULL CELL:*

For unequaled, perfect Cadmium Plating . . .
ROHCO 20XL CADMIUM BRIGHTENER

For brilliant, low cost Zinc Plating . . .
ROHCO 100 BARREL ZINC BRIGHTENER
ROHCO 503 STILL AND AUTOMATIC ZINC BRIGHTENER

For retained beauty and added corrosion resistance . . .
RODIPS CD-3 AND CD-4 ON CADMIUM PLATE
RODIPS ZN-22 AND ZN-30 ON ZINC PLATE

Profit-making, successful platers are getting superb quality with preferred ROHCO Products. They know in today's competitive market nothing but the finest finishes can continually bring in repeat business from satisfied customers. With the use of ROHCO Products, highest quality and absence of rejects are a matter of course in daily production. Keep in mind that these products must have a wide latitude of operation and ease of maintenance to earn the ROHCO Trade Mark.



Your Nearby ROHCO Representative is eager to work with you . . .

——————— Nationwide Stockpoints ———————

R. O. HULL & COMPANY, INC.

1304 Parsons Court • Rocky River 16, Ohio

For more data circle 301 on Postpaid Card

Want to strip an "unstrippable" coating?

ask Oakite

OVER 50 YEARS CLEANING EXPERIENCE • OVER 250 SERVICE MEN • OVER 160 MATERIALS

Even tough EPOXY FINISHES peel off in Oakite STRIPPER S-A

Burn off an epoxy finish from a reject as a last resort? Not at all necessary. Oakite STRIPPER S-A strips metals clean. That's true for multiple coats as well as single coat epoxy finishes. Look at STRIPPER S-A's record:

- *A 3/16" thick coating built up from layers of epoxy coating and wrappings of fiber glass was stripped from gun barrels by overnight soak in Stripper S-A. Everything tried previously had failed.*
- *Brass plated steel parts were stripped of their epoxy finish in matter of minutes.*
- *Workholding spindles and racks laden with at least 10 coats were stripped to bare metal by a short soak. Paint hooks formerly burned clean are now soaked clean instead.*

This powerful stripper is safe for all metals except zinc and magnesium. And it's safe to the user, since it works cold . . . has no flash point . . . rinses with water.

STRIPPER S-A is but one of a long list of superior strippers by Oakite. Some are specially formulated for use on steel . . . aluminum . . . other metals. Some for removing lacquers . . . tough synthetic finishes. Still others are designed especially for removing paint from vertical surfaces. Whatever your paint-stripping problem—Oakite is bound to have the answer. Ask your local Oakite man or send for paint-stripping bulletin F-7893. Oakite Products, Inc., 20 Rector Street, New York 6, N. Y.

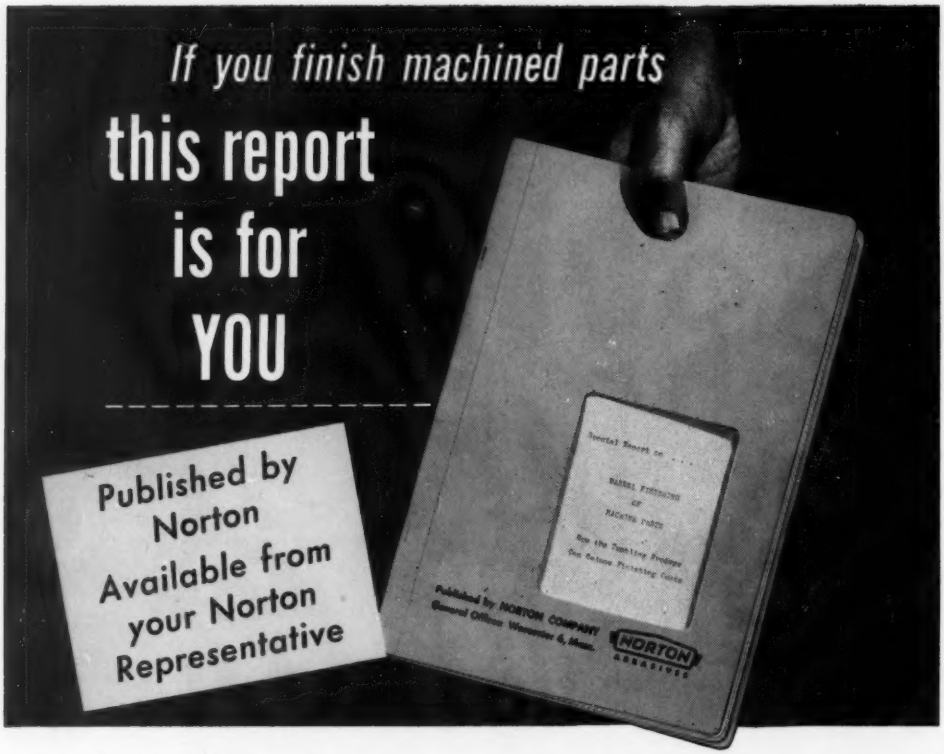
it PAYS to ask Oakite

OAKITE

50 1909-1959 SCIENCE

years' leadership in industrial cleaning

For more data circle 304 on Postpaid Card



Barrel-Finishing Machined Parts, one of a Norton series of reports, is based on the outstanding advantages of barrel-finishing over hand-finishing for many jobs.

Written by Norton Abrasive Engineers, who serve all industry, it tells you how barrel-tumbling improves surface finish and fatigue strength, removes burrs, forms uniform radii and reduces the production costs of all types of machined parts. And it describes how many users have found TUMBLEX* abrasives ideal for these applications. For example:

Manual finishing of large fabricated aircraft gears with a 4" wide tooth took eight hours each and left the tooth ends rough. With barrel-finishing, using random shaped ALUNDUM* TUMBLEX *"A" abrasive in combination with* TUMBLEX *"T" triangles, the gears could be tumbled in pairs producing uniform radii and a uniform, refined surface on the entire tooth.*

Get this report from your Norton Representative. It's as near as your phone. He'll also gladly supply facts and literature on all TUMBLEX Types: "A" (random shaped chips), "T" (bonded triangles), "S" (bonded spheres), and "N" (natural stones), covering all finishing requirements, on the widest range of materials. And for better, lower cost finishing of your work parts, send samples to our Sample Processing Department. They'll be finished and returned to you promptly, with complete facts as to abrasives, methods and equipment. NORTON COMPANY, General Offices, Worcester 6, Mass. Plants and distributors around the world.

NORTON
ABRASIVES

G-364

*Trade-Marks Reg. U.S. Pat. Off. and Foreign Countries

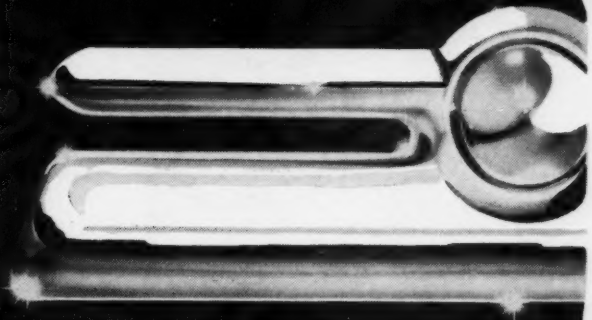
Making better products . . . to make your products better

NORTON PRODUCTS Abrasives • Grinding Wheels • Grinding Machines • Refractories • Electrochemicals

BEHR-MANNING DIVISION Coated Abrasives • Sharpening Stones • Pressure-Sensitive Tapes

For more data circle 305 on Postpaid Card

UNMATCHED CORROSION RESISTANCE



The No. 1 Feature of

HARSHAW PERFLOW PERGLOW DUPLEX *Nickel Plating Process*

Harshaw's research and development laboratory solved the problem of plating nickel on nickel. This, coupled with the use of a sulfur-free nickel plate and a bright nickel from a compatible bath, has made possible a Duplex deposit with unequalled corrosion resistance.

EXCELLENT CORROSION PROTECTION ACHIEVED THROUGH USE OF A SULFUR-FREE DEPOSIT

The Harshaw Chemical Company after years of research and development work was the first to find that a *sulfur-free* nickel offers greater corrosion resistance. This fact led to the development of the Harshaw Perflow nickel plating process. Further research showed that use of the sulfur-free Perflow nickel deposit as a base coating, followed by a bright nickel deposit from a *compatible* bath, would give a Duplex deposit with a further improvement of corrosion resistance. Performance data, by both accelerated tests and outdoor exposure, from leading automobile manufacturers and parts suppliers indicate that the Harshaw Perflow-Perglow Duplex nickel plate is comparable to and frequently better than, buffed gray nickel and is unequalled by any bright nickel.

MANY OTHER ADVANTAGES

1. Exceptionally high plating speeds—with air or mechanical agitation.
2. Excellent Chrome Coverage.
3. Unsurpassed Leveling Characteristics.
4. Outstanding Brightness.
5. High Tolerance to Impurities.
6. Excellent Adhesion.
7. Excellent Ductility at Full Brightness.
8. Simplified Control—Stable over extended periods of operation.
9. Controlled Stress.
10. Uniform Protective and Decorative plate on both steel and zinc die castings.

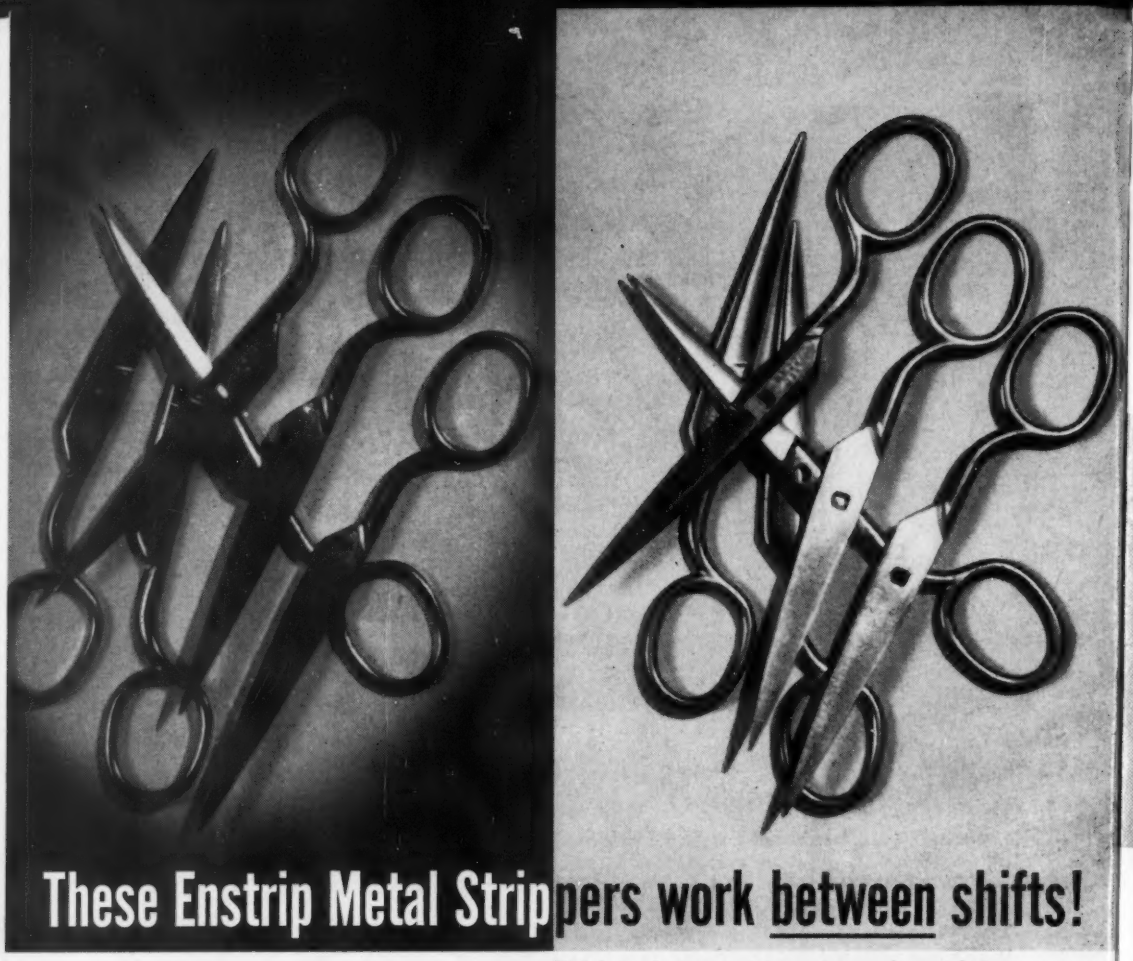
THE HARSHAW CHEMICAL CO.

1945 EAST 97TH STREET • CLEVELAND 6, OHIO

Chicago • Cincinnati • Cleveland • Detroit • Houston
Los Angeles • Hastings-On-Hudson • Philadelphia • Pittsburgh

HARSHAW

For more data circle 306 on Postpaid Card



These Enstrip Metal Strippers work between shifts!

Nickel plated scissors on left were immersed overnight in an Enstrip A solution and left without supervision. Next morning (see right) they were down to bare steel ready for replating.

How would you like to dump your rejected plated parts into a stripping solution and "forget" them? Next morning, there they are, completely stripped and ready for replating! That's what Enstrip S and Enstrip A can do for you. These patented products of Enthonics research are alkaline solutions that dissolve nickel, copper, brass, silver, zinc and cadmium plate without attacking steel basis metals. Even when parts remain in the bath for hours after completion of stripping, the base metal remains as bright and shiny as it was prior to original plating.

Enstrip S and Enstrip A solutions operate at room temperature. No temperature, voltage or current to control. No electrical contacts to keep tight. Never any need to "rescue" the work upon completion of stripping. If you want rapid stripping, Enstrip S and Enstrip A solutions, operated at elevated temperatures, will dissolve .0015" of nickel or .0030" of copper per hour!

Write for the handy Enstrip Selection Chart which gives complete information about these new Enstrips, along with Enstrip 165 S (to dissolve nickel from copper and brass); Enstrip T-L (to dissolve soft solder, tin, and lead from steel and copper base alloys); Enstrip L-88 (to anodically remove copper, nickel, and chromium from zinc base die castings in a single operation), and many others. Enthone Incorporated, 442 Elm Street, New Haven, Connecticut.

ASARCO

ANOTHER PRODUCT OF *Enthonics* RESEARCH

ENTHONE

A Subsidiary of American Smelting and Refining Company

For more data circle 307 on Postpaid Card

M. L. FORNEY, *Publisher*
RICHARD S. KLINE, *General Manager*
EZRA A. BLOUNT, *Editor*
GERARD H. POLL, JR., *Associate Editor*
H. LEROY BEAVER, DR. NELSON F. MURPHY } *Consulting and Contributing Editors*
NORMAN S. ROGERS, *Art Editor*
K. M. GETTELMAN, *Circulation Manager*

products finishing

Vol. 23 *No. 8* *May, 1959*

FEATURES IN THIS ISSUE:

23 THE GROUP-THINKING CRAZE • *Editorial*

24 FINISHING CHEVROLET HOODS AND FENDERS • *By Ezra A. Blount, Editor*

34 QUALITY CONTROL IN PAINT FINISHING • *By Harold Shapiro*

42 A.E.S. CONVENTION HIGHLIGHTS

50 FLAT POLISHING SPECIALISTS • *By Ezra A. Blount, Editor*

6 ADVERTISING REPRESENTATIVES

76 REPRINTS AVAILABLE

DEPARTMENTS:

56 FINISHING CLINIC

60 SPOTLIGHTING FINISHING PROGRESS —AN EFFECTIVE PROTECTIVE COATING FOR MOLYBDENUM

72 METALS MEMOS

74 DEADLINE NEWS

82 NEW EQUIPMENT, MATERIALS, PROCESSES

129 PRODUCT LITERATURE

143 CLASSIFIED ADVERTISING; POSITIONS AVAILABLE; USED MACHINERY; PROFESSIONAL CARDS; SERVICES

144 NEWS OF THE FINISHING INDUSTRY

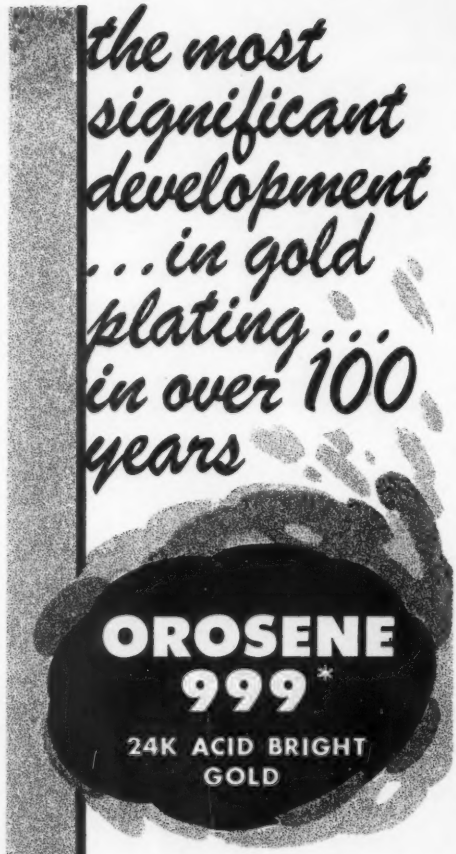
158 THE FINISHING TOUCH

160 MAY ADVERTISERS' INDEX

Member
BPA
Metal Finishing Suppliers Association Inc.

contents

Published monthly with two issues in March and copyrighted (1959) by Gardner Publications, Inc., 431 Main St., Cincinnati, Ohio. Printed in U.S.A.



an entirely new gold complex . . . produces mirror bright, hard electroplates in rack or barrel plating . . . it produces a bright, hard 24 Karat (99.8%) gold plate . . . the ONLY 24 Karat bright gold . . . OROSENE 999 24K gold electroplates are twice as hard and equally as ductile as ordinary 24K plates . . . contains NO silver, sulphur compounds or antimony . . . has exceptional tarnish and sulphide resistance . . . barrel solutions have the best throwing power and leveling of ANY gold for barrel plating . . . has only ONE addition agent . . . self-regulating and simple to control . . . solves many problems where ordinary bright, hard or 24K golds have failed.

Write, wire, phone or TWX for further details.

*Patent Pending

Technic Inc.

39 SNOW ST... PROVIDENCE 1, R. I.
JAckson 1-4200
Chicago Office 7001 North Clark Street

For more data circle 308 on Postpaid Card

products finishing

advertising representatives

Duncan W. Barton, 342 Madison Ave., New York 17, N. Y., Murray Hill 7-7390. Eastern Pennsylvania, central New York State, New Jersey, Maryland, Delaware, Washington, D. C., Long Island, Brooklyn, New York City, Staten Island.

Granville M. Fillmore, *Vice President,* 342 Madison Ave., New York 17, N. Y., Murray Hill 7-7390. Eastern New York State, Connecticut, Massachusetts, Rhode Island, Vermont, New Hampshire, Maine.

George E. Hay, 431 Main Street, Cincinnati 2, Ohio, CHerry 1-5924. Western Pennsylvania, western New York, Ohio, Kentucky, southern Indiana.

John M. Krings, *Vice President,* Tribune Tower, Chicago 11, Illinois, DElaware 7-5441. Western Michigan, Illinois, Wisconsin, Iowa, Minnesota, the Dakotas, northern Indiana.

Jeryl L. Marlatt, 1051 Brooklawn Rd., Birmingham, Michigan, MIdwest 6-5935. Eastern Michigan, northwestern Ohio.

Norman S. Rogers, 431 Main Street, Cincinnati 2, Ohio, CHerry 1-5924. Central Indiana.

Gene J. Schwarber, *Advertising Manager,* 431 Main Street, Cincinnati 2, Ohio, CHerry 1-5924. Missouri, Kansas.

The Robert W. Walker Company, 730 S. Western Ave., Los Angeles 5, Calif., DUnkirk 7-4388; 57 Post St., San Francisco 4, Calif., SUtter 1-5568. California, Oregon, Washington.

★ ★ ★

Circulation over 21,500— largest in the finishing field

America looks to . . . Hammond

for

FINISHING and DEBURRING "KNOW-HOW"

The experience gained in over 70 years of machinery building has provided us with a big bank of "Know How."

This knowledge is drawn upon and added to every day. Our business is to share it with you to bring down high finishing costs. Many users of Hammond Automatics have found more efficient means of finishing by drawing on our bank of "Know How."

The Rotary Automatic illustrated represents one of our many types and sizes of automatic finishing machines for either continuous rotation or indexing. The head and stand units shown are a part of a large "family" which range in type and size up to 20 HP.

SEND SAMPLES and we will show you how much you can speed up production and cut costs.

Hammond Machinery Builders INC

1622 DOUGLAS AVE. • KALAMAZOO, MICH.

See us at the Industrial Finishing Exposition—June 15-19—Detroit—Booths 261-266.

For more data circle 309 on Postpaid Card

News about COATINGS FOR METALS

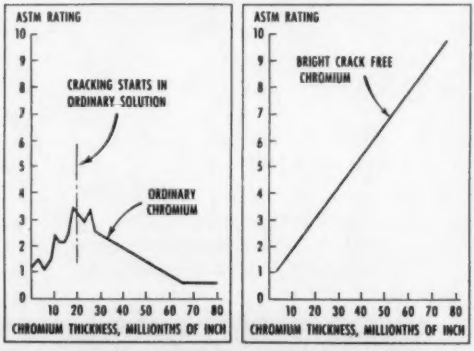
from

Metal & Thermit Corporation

Thicker plate increases

Thicker chromium in general, and Unichrome SRHS® and Crack-Free deposits especially, are doing more to increase protection against corrosion than any other change in decorative chromium plating in the past 25 years. Latest research demonstrates this.

As far back as 1928, it was shown that ordinary chromium plate soon reaches a critical thickness. (See graph A.) At a thickness of approximately .020 mils, the chromium cracks microscopically. Through these openings, corrosives can reach the undercoatings, and ultimately attack the base metal,



Graph A. Effect of increasing thickness of ordinary chromium on salt spray resistance . . . from Baker & Pinner data, SAE 1928. **Graph B.** Crack-Free Chromium ASTM corrosion ratings based on accelerated acetic acid salt spray tests.

ruining the appearance and function of the plated part.

# of chromium corrosion protection

Note, however, that before cracking commences, corrosion resistance *does* build up as the number of pores in the plate are reduced by the thicker deposit. Depending on undercoats, the effect of cracking can be modified.

DUCTILE CHROMIUM DOESN'T CRACK

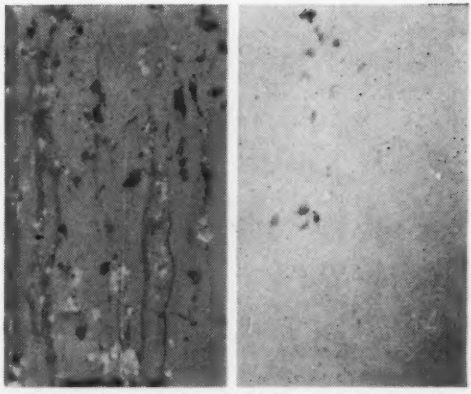
But see what happens in the case of Unichrome Bright Crack-Free Chromium. (Graph B.) An innovation in plating, it plates as thick as desired for practical purposes – entirely without cracks – and, as thickness increases, corrosion-admitting pores are eliminated. Protection keeps rising.

BETTER PROTECTION IN RECESSES

In the past, corrosion usually appeared in recessed areas of parts where little or no chromium could be plated to protect the base metal. This problem, too, is solved by Unichrome Bright Crack-Free Chromium which gives much better coverage and throwing power than previous processes.

LOW COST

The corrosion protection of decorative chromium can be improved several ways. Unichrome Crack-Free Chromium can be used alone or in combination with other fast plating SRHS chromium processes. Combination of chromium deposits, impossible from a practical standpoint for 25 years, is now done commercially with SRHS and Crack-Free Chromium, thereby eliminating need for new, larger tanks and saving thousands of equipment dollars.



Effect of thickness of CRACK-FREE Chromium over thin undercoatings (0.4 mil Nickel on steel) after 48 hours CASS test. Left – 0.015 mil Chromium; right – 0.045 mil Chromium.

A technical paper, "Thicker Decorative Chromium for Better Corrosion Resistance" gives more details. Write for your copy. METAL & THERMIT Corporation, Rahway, New Jersey.

METAL & THERMIT
CORPORATION

For more data circle 310 on Postpaid Card

to **BETTER**

PRE-PAINTING PROCESSES-

for Quality, Economy and Endurance Use

N.C.Co.

METALPREP
GALVAPREP
LYFANITE
PHOSTEEM
PREP-N-COTE
EMULSOPREP
STRIP-PREP
RINSEPREP
and other
PREP PRODUCTS for
STEEL, ALUMINUM,
ZINC, CADMIUM, etc.

PREP PRODUCTS

• Yes, you will get better results with this superior line . . . Whether it's Phosphating, Conversion Coating, Metal Conditioning, Cleaning, Bonding or Rust Removing, we have the Prep Product and Process for your particular needs.

Be Safe—Be sure! Write today. Give us details. We'll make recommendations.

NEILSON CHEMICAL CO.

Southeastern Distributor:
F. H. ROSS CO.
Charlotte, North Carolina

2302 Gainsboro,
Detroit 20 (Ferndale), Michigan

Allentown, Penna.
Los Angeles, Cal.
Windsor, Ontario

For more data circle 311 on Postpaid Card

How many places can you use push-button touch-up?

Damage to the finish of your product happens anywhere—from your own assembly department to the final customer. With the Sprayon Self-Spraying Touch Up Tool *any* employee quickly repairs the damage *right where it happens.* Costs go down. Eye-appeal of your product and customer satisfaction go up! Sprayon goes right to your source for your own touch-up finish, custom loads the Tools for you under your own label. Exclusive Sprayon features mean even unskilled help do a factory-match job in minutes ...for pennies! It's a complete paint shop in a can!

Write for FREE touch-up folder.

Free training movie, "The Finishing Touch" (16 mm, sound, color, 11 minutes) Write for information.

SPRAYON *Self Spraying* TOUCH UP TOOL

SPRAYON PRODUCTS, INC.

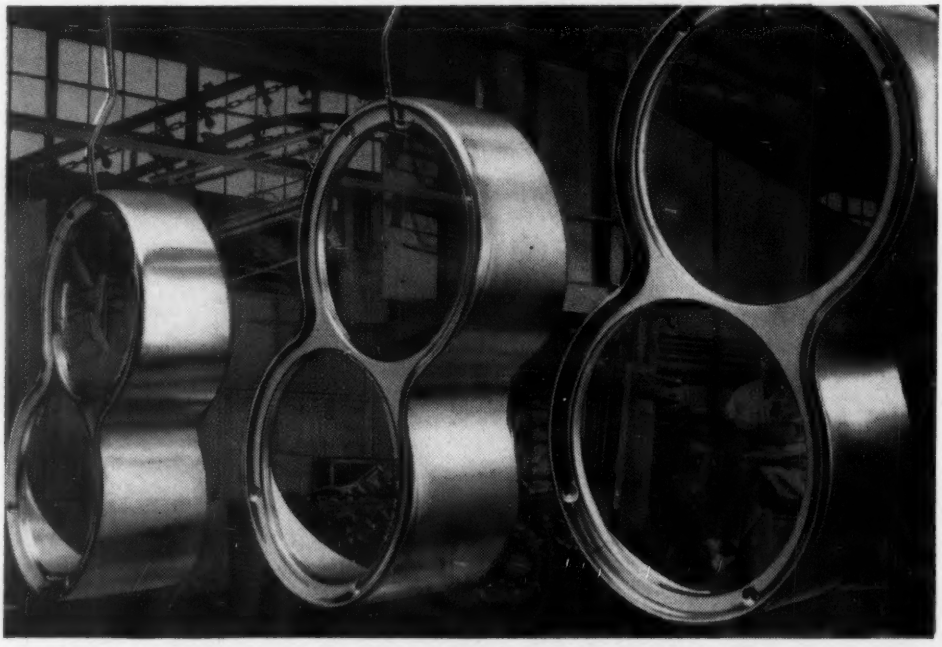
2077 East 65th Street • Cleveland 3, Ohio

For more data circle 312 on Postpaid Card

DOW

metal cleaning report no. 1

case histories from your Dow Solvents Distributor



Aluminum headlight assembly being cleaned in vapors of Dow trichloroethylene.

DOW FIELD-LAB TEAM SOLVES DEGREASING RIDDLE

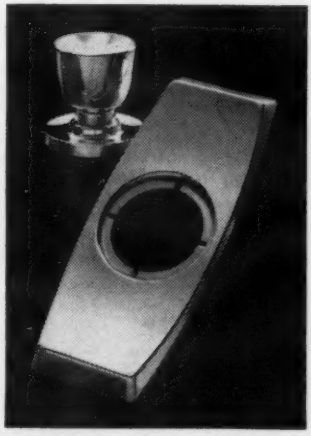
Bay City, Mich.—Manufacturer of auto parts reported faulty still was causing dirty distillate in his trichloroethylene degreasing operation. Dow field team went in, did thorough check of whole operation. Discovered not one, but three trouble spots: (1) Water separator on degreasing unit working improperly; (2) Excess water in stamping oil on parts being cleaned (Dow lab finding); (3) Faulty steam injection valve on still. Valve replaced, water separator repaired, and new stamping oil put in use. Plant now getting good cleaning action first time through vapor degreasing unit using Dow trichloroethylene. Key to solution was skill and thoroughness of trained Dow solvents team.

Time and time again, Dow solvents distributors help manufacturers improve cleaning and stripping operations. And for two good reasons: (1) Dow offers the widest line of chlorinated solvents for modern industry; (2) Dow backs its distributors to the hilt with technical information and on-the-job help. Chances are good that one of the many Dow industrial solvents can help smooth out your operations, too. Dow solvents are made to high purity standards and each is designed to do a specific job and do it well. For help on your metal cleaning problems call on the nearby Dow solvents distributor. His name is listed on the next page.

THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN

NEW COLD CLEANER SAVES BIG DOLLAR

Detroit, Mich.—Expensive fluorinated cleaner was being used by manufacturer to remove paraffin oils from refrigeration compressors. Key requirement: clean parts without damaging insulation varnish on motor windings. Dow solvent team invited in. Observations pointed to Chlorothene® (Dow 1,1,1-trichloroethane, inhibited). Compressors cleaned with Chlorothene and air purged immediately after. Lab tests proved Chlorothene cleaned effectively, safely, without damaging insulating varnish. Company switched to Chlorothene, effected real savings and got safe, sure cleaning.



PERCHLOROETHYLENE KEY

Los Angeles, California—Nationally known lock manufacturer was having difficulty cleaning plated metal parts. Door handles and face plates were coming off trichloroethylene degreasing line with marring water spots. Dow called in on problem. Recommended switch to Dow perchloroethylene. Higher boiling point and longer cleaning action resulted in spotless parts. Lock maker now saving time, money, with efficient perchloroethylene degreasing.

FREE . . .
TECHNICAL SERVICE
on 24-hour notice

Your Dow solvents distributor will gladly help you with any problems you're experiencing with metal cleaning solvents. He'll have a trained solvents specialist en route to your plant within 24 hours after your call is received!

Ask your Dow solvents distributor for details.

STOP-OFF LACQUER STRIPPED FAST

Stratford, Conn.—Major aircraft engine manufacturer was having trouble removing stop-off lacquer used on steel and aluminum parts selectively plated. Parts were being soaked and rinsed in flammable thinner. Process was slow, results unsatisfactory. Dow distributor suggested vapor degreasing with Dow methylene chloride. Parts were run through vapors, then rinsed with spray lance application of m.c. System worked. Lacquer stripped off clean in matter of minutes. Flammability hazard eliminated. Problem marked solved.

CHLOROTHENE®
TRICHLOROETHYLENE
PERCHLOROETHYLENE
METHYLENE CHLORIDE

See Your Dow Solvents Distributor First!

For more data circle 313 on Postpaid Card

Dow

FOR HELPFUL METAL CLEANING INFORMATION

get in touch with your Dow Solvents Distributor

LETTER KEYS:

(C)—Chlorothene®; **(M)**—Methylene Chloride; **(P)**—Perchloroethylene (Industrial); **(T)**—Trichloroethylene

ALABAMA

BIRMINGHAM—Wittichen Chemical Company (C M P)
BIRMINGHAM—F. H. Ross and Company (C M P T)
MOBILE—Barada and Page, Inc. (C M)
MOBILE—McKesson & Robbins, Inc. (C M P T)
MOBILE—F. H. Ross and Company (C M P)
MONTGOMERY—Wittichen Chemical Company (C M P)

ARIZONA

PHOENIX—Braun Chemical Company (C M P T)
PHOENIX—Western Chemical Company (C M P)
TUCSON—Western Chemical Company (C M P)

CALIFORNIA

LOS ANGELES—Braun Chemical Company (C M P T)
LOS ANGELES—McKesson, Mefford Chemical Division (P)
LOS ANGELES—Pemaco, Inc. (P T)
OAKLAND—B. N. Meacham Company (C)
SAN DIEGO—Braun Chemical Company (C M P T)
SAN DIEGO—Buel Town Company (T)
SAN FRANCISCO—Braun-Knecht-Heimann Co. (C M P T)
SAN FRANCISCO—G. N. Meacham Company (C)
SOUTH GATE—American Mineral Spirits (P)

COLORADO

DENVER—Braun-Knecht-Heimann Company (C M)
DENVER—Chemical Sales Company (C M P T)
DENVER—McKesson & Robbins, Inc. (C M P T)
DENVER—Mine and Smelter Supply Company (C M P T)
GRAND JUNCTION—C. D. Smith Co., Chemical Division (C P T)

CONNECTICUT

NEW HAVEN—H. Krevit and Company, Inc. (P T)
SHELTON—Axton-Cross Company (C M P T)
SOUTH NORWALK—McKesson & Robbins, Inc. (C M P T)
SOUTH NORWALK—Guard-All Chemical Company (P T)

FLORIDA

JACKSONVILLE—F. H. Ross and Company (C M P T)
JACKSONVILLE—Amica Burnett Chemical Co. (C M P T)
MIAMI—Amica Burnett Chemical Company (C M P T)
MIAMI—Biscayne Chemical Laboratories (C M P T)
ORLANDO—Atlantic Chemicals, Inc. (C M P T)
TAMPA—Atlantic Chemicals, Inc. (C M P T)

GEORGIA

ATLANTA—McKesson and Robbins, Inc. (C M P T)
ATLANTA—F. H. Ross and Company (C M P T)
ATLANTA—Southern States Chemical Company (C M P T)
COLUMBUS—F. H. Ross and Company (C M T)
DUBLIN—Textile Aniline Chemical Company (T)

IDAHO

BOISE—Van Waters and Rogers, Inc. (C M P)

ILLINOIS

AURORA—River Valley Chemicals, Inc. (C M P T)
CHICAGO—Central Solvents and Chemicals (C M P)
CHICAGO—C. P. Hall Company (C M P T)
CHICAGO—Keystone Aniline and Chemical Co. (C P)
CHICAGO—McKesson & Robbins, Inc. (C M P T)
CHICAGO—Joseph Turner and Company (C M P T)
DECATUR—McKesson & Robbins, Inc. (C M P T)
EFFINGHAM—Wabash Independent Oil Company (C P T)
PEORIA—McKesson & Robbins, Inc. (C M P T)
ROCKFORD—Industrial Oil and Chemical Company (C)
ROCKFORD—Viking Chemical Company (C M P T)

INDIANA

EVANSVILLE—Charles Leich and Company (P)
FT. WAYNE—Hoosier Solvents and Chemicals (C M P)
FT. WAYNE—Inland Chemical Corporation (C M P)
HAMMOND—Inland Chemical Corporation (C M P T)
INDIANAPOLIS—Hoosier Solvents and Chemicals (C M P)
INDIANAPOLIS—Wm. Lynn Chemical Company (C M P)
INDIANAPOLIS—Lynn Solvents Corporation (T)
INDIANAPOLIS—Ulrich Chemical Company, Inc. (T)
KOKOMO—Plating Products, Inc. (P T)
LOGANSPORT—Plating Products, Inc. (P T)
SOUTH BEND—Inland Chemical Corporation (C M P T)
SOUTH BEND—Stevens Oil Company (C M P)

IOWA

BETTENDORF—Barton Naptha Corporation (C M P T)
BURLINGTON—McKesson and Robbins, Inc. (C M P T)
CEDAR RAPIDS—McKesson and Robbins, Inc. (C M P T)
COUNCIL BLUFFS—Barton Solvents, Inc. (C M P T)
DAVENPORT—McKesson & Robbins, Inc. (C M T)
DES MOINES—Barton Naptha Company (C M P T)
SIOUX CITY—McKesson and Robbins, Inc. (P)
SUMNER—Overton Chemical Sales (C)

KANSAS

WICHITA—Barada and Page, Inc. (C M)
WICHITA—Reid Supply Company (C P T)

KENTUCKY

LOUISVILLE—Dixie Solvents and Chemicals (C M P)
LOUISVILLE—Gans Chemical and Supply Company (P)
LOUISVILLE—McKesson and Robbins, Inc. (C M P T)

LOUISIANA

BATON ROUGE—Barada and Page, Inc. (C)
LAKE CHARLES—Barada and Page, Inc. (C M)
NEW ORLEANS—Barada and Page, Inc. (C)
NEW ORLEANS—Southern Solvents and Chemicals (C M P T)

MAINE

LEWISTON—Polar Chemical Company (C M P T)

MARYLAND

BALTIMORE—B. J. Howard Company (C M P T)
BALTIMORE—Leidy Chemicals Corporation (C M P)
BALTIMORE—Seiler Chemicals (C)
BALTIMORE—Tilley Chemical Company (T)

MASSACHUSETTS

BOSTON—Howe and French, Inc. (C M)
BOSTON—Linder and Company, Inc. (C M P T)
BOSTON—McKesson and Robbins, Inc. (C M P T)
EVERETT—Sessions-Gifford Co., Inc. (C M P T)
FRAMINGHAM—Axton-Cross Corp. of Massachusetts (C P T)
HINGHAM—Stephen-Roger, Incorporated (C M P T)
HOLYOKE—Eastern Chemicals, Inc. (M)
SPRINGFIELD—Chemical Corporation (C M P T)
SPRINGFIELD—Hampden Color and Chemical Co. (C M P)
STONEHAM—Geo. Mann & Co. (C M P T)
WORCESTER—George H. Clark and Co. (C M P T)

MICHIGAN

DETROIT—Eaton Chemical and Dyestuff (C M)
DETROIT—Manpro Corporation (C M P T)
DETROIT—McKesson and Robbins, Inc. (C M P T)
DETROIT—Western Solvents and Chemicals (C M P)
DETROIT—Whitfield Chemical Company (P)
EAST DETROIT—Sherwood Chemical Company (P)
ESCANABA—Haviland Products Company (C M P)
FERNDALE—Manpro Corporation (C M P T)
GRAND RAPIDS—P. B. Gast and Sons Company (C)
GRAND RAPIDS—Haviland Products Company (C M)
GRAND RAPIDS—Wolverine Solvents and Chemicals Co. (C M P)
LANSING—Carrier Stephens Company (C P)
LANSING—Wheaton Chemical Company (C P T)
LUDINGTON—P. B. Gast and Sons Company (C)

MINNESOTA

MINNEAPOLIS—W. H. Barber Company (P T)
MINNEAPOLIS—McKesson & Robbins, Inc. (C M P T)
MINNEAPOLIS—Tripoil Refining Corporation (M P T)
ST. PAUL—Lyons Chemicals, Inc. (C M P)

MISSISSIPPI

JACKSON—F. H. Ross and Company (C M P)

MISSOURI

KANSAS CITY—Barada and Page, Inc. (C M)
KANSAS CITY—Missouri Solvents and Chemicals (C M P)

KANSAS CITY—Sherwood and Company, Inc. (C M P T)
ST. LOUIS—Barada and Page, Inc. (C M)
ST. LOUIS—Independent Oil Company (C M P T)
ST. LOUIS—McKesson and Robbins, Inc. (C M P T)
ST. LOUIS—G. S. Robins and Company (C M P)
ST. LOUIS—St. Louis Solvents and Chemicals (C P T)
ST. LOUIS—Missouri Solvents and Chemicals (C M P)

NEBRASKA

OMAHA—Barton Solvents, Inc. (C M P T)
OMAHA—McKesson and Robbins, Inc. (C M P T)

NEW JERSEY

BLOOMFIELD—McKesson & Robbins, Inc. (C M P T)
CAMDEN—Callahan Chemical Company (M P T)
EAST PATERSON—Aetna Color and Chemical Company (C M P T)
MURRAY HILL—American Mineral Spirits (C M P T)
NEWARK—American Oil and Supply (C P)
NEWARK—National Oil and Supply Company (C M P T)
PALISADE PARK—Philip A. Hunt Company (C)
VINELAND—Lirio Chemical Company (C T)

NEW MEXICO

ALBUQUERQUE—Braun Chemical Company (C M P T)
ALBUQUERQUE—Edmunds Chemical Company (C M P T)

NEW YORK

ALBANY—Eastern Chemical (C M P)
ATHENS—Spick Products Company (P T)
BINGHAMTON—Collier Chem. (C M)
BRONX—Elco Solvents Corporation (M P T)
BROOKLYN—Enequist Chemical Company (C P)
BUFFALO—Buffalo Solvents and Chemicals (C M P)
BUFFALO—Chemical Sales Corporation (C M P T)
BUFFALO—McKesson & Robbins, Inc. (C M P T)
EDGEMERE—Hogan Industrial Supply (P T)
GLOVERSVILLE—Eastern Chemicals, S. H. Ireland Div. (C M)
KEARNY—American Chemicals Inc. (C M P T)
LONG ISLAND CITY—Peerless Oil and Chemical (C M P T)
NEW YORK—American Chemicals, Inc. (C M P T)
NEW YORK—McKesson and Robbins, Inc. (C M P T)
POUGHKEEPSIE—Duso Chemical Company (C)
RENSSELAER—Eastern Chemicals, Inc. (C M)
ROCHESTER—Chemical Sales Corporation (C M P T)
ROCHESTER—J. H. Rae Oil Company, Inc. (P T)
SYRACUSE—Eastern Chemicals, Inc. (C M)
UTICA—Monarch Laboratories (C M P)

NORTH CAROLINA

CHARLOTTE—F. H. Ross and Company, Inc. (C M P T)
CHARLOTTE—Moreland Chemical Company (C M P T)
CHARLOTTE—Southern States Chemical Co. (C M P T)
GREENSBORO—F. H. Ross and Company, Inc. (C M P T)

OHIO

AKRON—Farley Solvents Company (C M P T)
AKRON—C. P. Hall Company (C P T)
CANTON—Bison Corporation (C P)
CINCINNATI—Amsco Solvents and Chemicals (C M P)
CINCINNATI—Chipman Supply Company (T)
CINCINNATI—Herbert Chemical Company (P T)
CINCINNATI—McKesson and Robbins, Inc. (C M P T)
CLEVELAND—Man-Gill Chemical Company (C P T)
CLEVELAND—McKesson and Robbins, Inc. (C M P T)
CLEVELAND—National Solvents Corporation (C P T)
CLEVELAND—Ohio Solvents and Chemicals, Inc. (C M P)
CLEVELAND—R. W. Renton Company (C P T)
COLUMBUS—McKesson & Robbins Inc. (C M P T)
DAYTON—Industrial Chemical Products Co. (C P T)
DAYTON—Ottoson Solvents, Inc. (T)
LIMA—Thomson Chemical Company (C P T)
TOLEDO—Inland Chemical Co. (C M P)
TOLEDO—Toledo Solvents and Chemicals (C M P)
TOLEDO—M. I. Wilcox Company (C P T)
YOUNGSTOWN—Rhiel Supply Company (C M P T)

OKLAHOMA

OKLAHOMA CITY—Barada and Page, Inc. (C M)
TULSA—Barada and Page, Inc. (C M)
TULSA—Chemical Products, Inc. (C M P T)

OREGON

PORTLAND—Van Waters and Rogers (C M P)

PENNSYLVANIA

CONSHOHOCKEN—American Mineral Spirits (C M P T)
EASTON—Lehigh Valley Chemical Company (C M P T)
ERIE—Monarch Laboratories (T)
McKEES ROCK—Apex Soap and Sanitary Corp. (C P T)
PHILADELPHIA—Alex C. Fergusson Company (C P T)
PHILADELPHIA—McKesson and Robbins, Inc. (C M P T)
PHILADELPHIA—Phillips and Jacobs, Inc. (C M)
PHILADELPHIA—Pioneer Salt Company (C M P T)
PHILADELPHIA—George Senn, Inc. (C M P T)
PITTSBURGH—Carmac Chemical Company, Inc. (C P)
PITTSBURGH—Carman-Pittsburgh Company (C P T)
PITTSBURGH—Dacar Chemical Products Company (C P T)
PITTSBURGH—Ft. Pitt Chemical Company (C M P)
PITTSBURGH—McKesson and Robbins, Inc. (C M P T)
READING—R. W. Eaken, Inc. (C P T)
READING—Textile Chemical Company (C P)
SCRANTON—Scranton Chemical Company (C P T)
YORK—Industrial Solvents and Chemicals (C P T)

RHODE ISLAND

PROVIDENCE—George Mann and Company (C M P T)
PROVIDENCE—Sessions-Gifford Company, Inc. (C M P T)

SOUTH CAROLINA

CHARLESTON—Burris Chemical Company (C P T)
GREENVILLE—F. H. Ross & Company (C M P T)
GREENVILLE—Southern States Chemical Company (C M P T)
SPARTANBURG—Moreland Chemical Company, Inc. (C M P T)

TENNESSEE

CHATTANOOGA—Chapman Chemical Co. (C M P T)
CHATTANOOGA—Wilson Sales Company (C M P T)
KINGSPORT—Chem-I-Dent, Inc. (C P T)
MEMPHIS—Chapman Chemical Company (C M P T)
MEMPHIS—C. P. Hall Company (C M P T)
MEMPHIS—Ideal Chemical and Supply Co. (C M P T)
NASHVILLE—Chapman Chemical Company (C M P T)
NASHVILLE—Wilson Sales Company (C M P T)

TEXAS

AMARILLO—State Chemical Company (C M P T)
AUSTIN—R. M. Hughes Company, Inc. (C M P T)
BEAUMONT—Arthur Dooley and Son (C M P T)
CORPUS CHRISTI—Barada and Page, Inc. (C M)
DALLAS—Barada and Page, Inc. (C M)
DALLAS—McKesson & Robbins Inc. (C M P T)
DALLAS—Texas Solvents and Chemicals Co. (C)
DALLAS—Van Waters and Rogers, Inc. (C M P T)
EL PASO—Baron Chemical Company (C M P T)
EL PASO—Braun Chemical Company (C M P T)
EL PASO—Mine and Smelter Supply Company (P)
FORT WORTH—Barada and Page, Inc. (C M)
FORT WORTH—Worth Chemical Products Co. (C M P)
HOUSTON—Barada and Page, Inc. (C M)
HOUSTON—W. A. Curtain and Company (P)
HOUSTON—Dixie Chemical Company (C M P T)
HOUSTON—R. M. Hughes Company, Inc. (C M P T)
HOUSTON—McKesson, Texas Chemical Division (C M P T)
HOUSTON—Texas Solvents and Chemicals Co. (C M P)
HOUSTON—Van Waters and Rogers, Inc. (C M P T)
LUBBOCK—State Chemical Company (C M P T)
MIDLAND—State Chemical Company (C M P T)
ODESSA—Barada and Page, Inc. (C M)
SAN ANTONIO—R. M. Hughes Company, Inc. (C M P T)
SAN ANTONIO—McKesson and Robbins, Inc. (C M P T)

UTAH

SALT LAKE CITY—Braun-Knecht-Heimann Co. (C M P T)

VIRGINIA

NORFOLK—Taylor Salt and Chemical Company (C P T)
RICHMOND—Phipps and Bird, Inc. (C M P)
ROANOKE—Havnaer Supply Company (C M P T)

WASHINGTON

SEATTLE—Van Waters and Rogers, Inc. (C M P)
SPOKANE—Van Waters and Rogers, Inc. (C M P)

WEST VIRGINIA

CHARLESTON—B. Preiser and Company (C M P T)
FAIRMONT—Fairmont Machinery, Fairmont Supply (C P T)
HUNTINGTON—Cabell Chemical Company (C P T)

WISCONSIN

CHIPPEWA FALLS—Lyons Chemical (C M P T)
LA CROSSE—Wisconsin Solvents & Chemicals Corp. (C M P)
MADISON—North Central Chemicals (C M P T)
MILWAUKEE—McKesson and Robbins, Inc. (C M P T)
MILWAUKEE—Wisconsin Solvents and Chemicals (C M P)
WAUKESHA—Fred Portz and Son (C T)

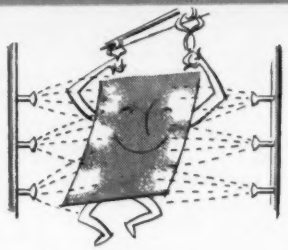
See Your Dow Solvents Distributor First!

For more data circle 314 on Postpaid Card

DeVilbiss...the one source

CLEANING AND SURFACE-PREPARATION EQUIPMENT

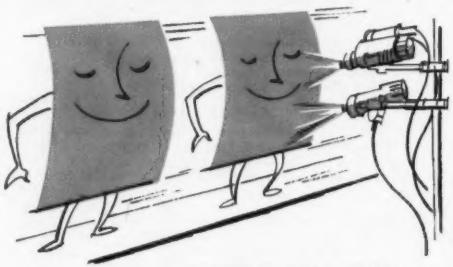
DeVilbiss offers standard and custom power washers; works with your engineers to match machines to processes, treatments, solution temperatures, chemicals required.



POWER SPRAY CLEANING AND TREATING

COATING EQUIPMENT

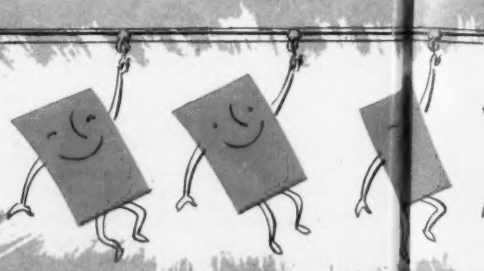
From manual spray gun to coating system complete with enclosures, spray booths, air-replacement systems—DeVilbiss can handle your needs. Design, manufacture, installation are one responsibility.



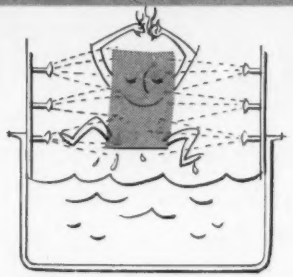
AUTOMATIC SPRAY

INDUSTRIAL OVENS

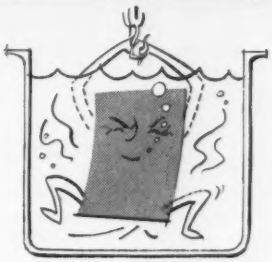
DeVilbiss heating and drying ovens are available in all types; incorporate features for minimum maintenance and high utilization of heat input; comply with code and underwriters' requirements.



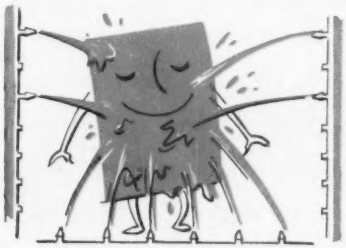
for all finishing equipment!



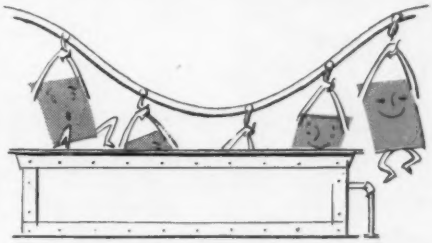
COMBINATION IMMERSION AND POWER SPRAY



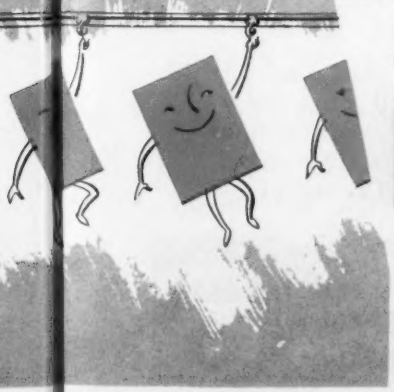
AGITATED IMMERSION



FLOW COATING



DIP COATING



Complete finishing system or component, call DeVilbiss for one-source service!

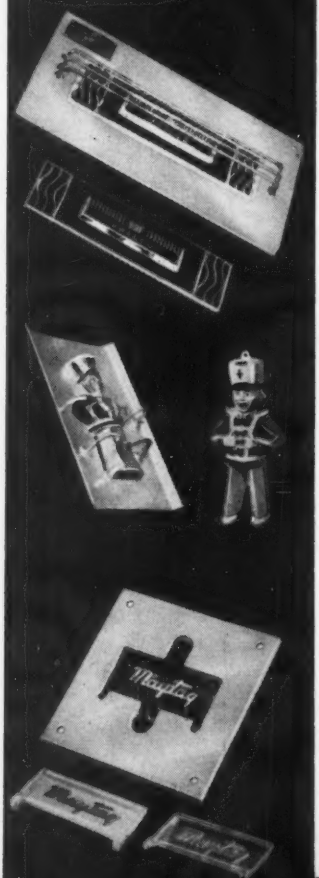
FOR BETTER SERVICE, BUY
DEVILBISS

THE DEVILBISS COMPANY
Toledo 1, Ohio
Barrie, Ontario
London, England
São Paulo, Brazil
Branch Offices in Principal Cities

For more data circle 315 on Postpaid Card

FIORE

MASKS FOR PRECISION PAINTING



Fiore Spray Masks are used on plastics, stampings and die-castings that have depressed or raised detail and on any other irregular shaped surface. If a product can be molded, stamped or die-cast, it can be decorated by Fiore spray masks.

Over ten years many manufacturers have been decorating their products by using Fiore spray-masks, associated jigs, fixtures and spray machines. Fiore Spray Masks and accessories are simple to use. An unskilled worker can operate them without special training and obtain perfect duplication and greater speed at a minimum cost.

Send for your free copy of our 20 page book. Or, send your samples and drawings for consultation and estimates.

WM. M. FIORE, INC.

269 - 41st STREET BROOKLYN 32, NEW YORK

For more data circle 316 on Postpaid Card

Another new development from Detrex:

HOT OR COLD
Phosphate Coating Processes

Improve Your Quality With Detrex PAINTBOND

Now, Detrex offers new PAINT-BOND processes tailored to your exact needs. These tested and proved processes include chemicals for applying zinc-iron phosphate and iron phosphate coatings to steel, iron, zinc or cadmium surfaces – whether the application is by spraying or immersion, or the preferred method is hot or cold.

Regardless of your location, Detrex' nation-wide technical service is at your disposal. A trained Detrex service engineer will be glad to review your process and make the proper recommendation to improve quality and reduce the unit cost of your operation.

And he will make periodic call-backs to aid you in maintaining maximum quality and efficiency at all times.

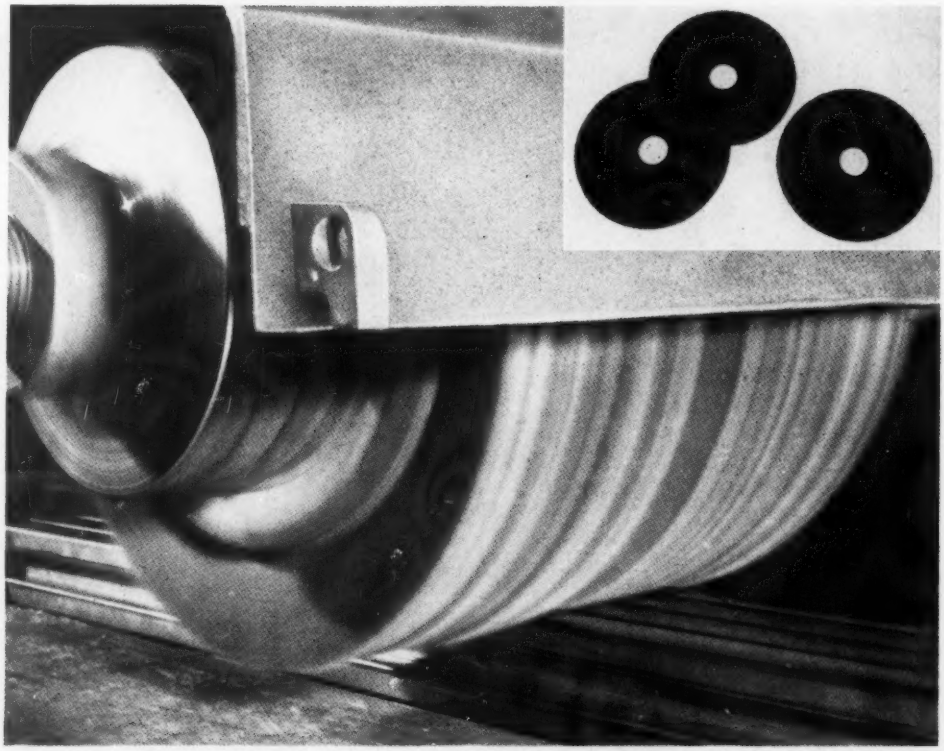
DETREX CHEMICAL INDUSTRIES, INC.

Box 501, Dept. PF-559, Detroit 32, Michigan

For more data circle 317 on Postpaid Card

3M announces the first <u>really</u> <u>new</u>

NEW "SCOTCH-BRITE"
BRAND



You are equipped to use "SCOTCH-BRITE" Now! No expensive production conversions necessary . . . "SCOTCH-BRITE" adapts to most hand, bench and production line machinery!

"SCOTCH-BRITE" sections mounted on conveyorized machine for flat work.

"SCOTCH-BRITE" sections on standard bench grinder for off-hand finishing.

"SCOTCH-BRITE" sections mounted on flexible shaft for blending.

"SCOTCH-BRITE" sections on floor lathe for production line use.

"SCOTCH-BRITE" pad cut from larger piece, used for hand touch-up work.

concept in finishing since 1921!

Finishing Material

...for stainless steel, aluminum, brass, copper, bronze, titanium, alloys...

"SCOTCH-BRITE" BRAND Finishing Material is a newly developed tough Nylon web, impregnated with microscopic working particles—the first major advance in metals finishing since 1921 when 3M introduced a coated abrasive that could be used either wet or dry.

Another product in the "SCOTCH-BRITE" family, introduced in February, 1958, has already revolutionized floor maintenance through amazing cost savings.

This amazing new "SCOTCH-BRITE" Material can be used in metal blending, cleaning, or finishing operations to obtain finer finishes; greater surface uniformity; and for correcting surface imperfections.

It gives a consistent finish from beginning to end of a run; mill-applied finishes obtained with "SCOTCH-BRITE" can easily be duplicated or matched by the fabricator.

"SCOTCH-BRITE" BRAND Finishing Material is lightweight, flexible, and can be formed to meet every need. It is available in different grades, and in a range of sizes in sheet, roll, and section forms. It will fit all existing mechanical equipment. Material is approximately ¼" thick; five to eight sections make up 1" of wheel width. Because of its extreme lightness, only ¼ h.p. per inch of wheel width is needed to drive. And greatest effectiveness is achieved with very light pressure—the material does the work!

"SCOTCH-BRITE" Finishing Material is completely unlike any other metal-finishing material you have ever seen—*and so are the results!* It gives the fastest, easiest, lowest cost satin-like finish of any method known . . . opens up new possibilities for a wide variety of new finishes for every kind of metal. And "SCOTCH-BRITE" allows finer finishes on thinner metal because it finishes *cool*—no discoloring; no distorting. Actual stock removal is so negligible as to be almost immeasurable!

Ask for FREE DEMONSTRATION!

"SCOTCH-BRITE" Brand Finishing Material is so totally different from any other, that the only way to judge it is by seeing it in action on your own production. We'll be glad to arrange a demonstration, with a competent technical advisor, at your convenience. Just use the coupon or write on your letterhead.

Minnesota Mining and Manufacturing Co., Dept. FH-59
900 Bush Ave., St. Paul 6, Minn.

Please call to arrange a demonstration of your new "SCOTCH-BRITE" Finishing Material.

NAME_____

COMPANY_____

ADDRESS_____

CITY_____ ZONE_____ STATE_____

"SCOTCH-BRITE" IS A REGISTERED TRADEMARK OF THE 3M CO., 900 BUSH AVE., ST. PAUL 6, MINN. EXPORT: 99 PARK AVE., NEW YORK 16, CANADA: LONDON, ONTARIO.

MINNESOTA MINING AND MANUFACTURING COMPANY

...WHERE RESEARCH IS THE KEY TO TOMORROW

3M COMPANY

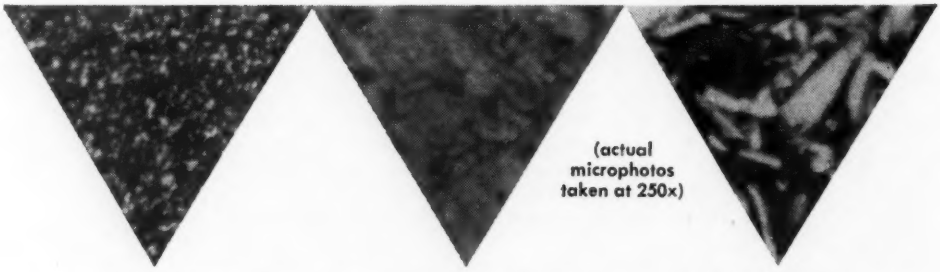
For more data circle 318 on Postpaid Card

HERE'S PROOF

AMORPHOUS

Cowles TY-BONDS

clean and coat metals faster, better, cheaper!



ZINC PHOSPHATE TY-BOND (Series A & S)

IRON PHOSPHATE TY-BOND (Series R)

ORDINARY CRYSTALLINE COATING

Cowles TY-BONDS form a *chemically integrated* bond with the base metal, allowing extreme flexing, twisting or bending without powdering . . . offering unparalleled adhesive qualities.

Cowles TY-BONDS are *non-sludging* . . . whether you do zinc phosphating or iron phosphating. Your immediate gain will be a reduction of labor and downtime formerly spent in cleaning and maintenance of production equipment.

Cowles TY-BONDS are *your answer* to better processing and better products! Get the full story from your Cowles Technical Man, or send for a free descriptive bulletin . . .

Cowles

CHEMICAL COMPANY

7016 Euclid Avenue • Cleveland 3, Ohio

For more data circle 319 on Postpaid Card

editorial

The Group-Thinking Craze

A supplier of plated parts recently told us about a problem that is becoming more common in business today.

He said that sometimes it's necessary or desirable for him to get permission to make a minor change in the design or specifications of the parts he produces, which is something this man has been doing for many years. But he says that he notices one thing that is significantly different from "the old days."

It used to be, he says, that he could go to the man he does business with and ask him whether it would be alright to make the change. This fellow would ponder the change, perhaps make a phone call, maybe ask to consider it for a day or so to allow him time to make a thorough investigation of the effect the proposed change would have. Then he would give the answer: yes or no.

Nowadays he still takes his change to the man he contacts at his customer's plant, but getting a decision is much more difficult. The reason? Well, the change must be ratified or disapproved by not just one man, but a board of men, or a committee. Or at least it has to be okayed by several men. The result is the same. Inevitably there is delay. Time wasted in desk-top baskets. **How did this all get started?** Well, partially, it's just a result of organizations getting bigger and more complicated in structure. And there's nothing wrong with this—we need the industrial giants, and a certain amount of complexity is required in their management.

But it seems to us that it's more than just complexity. Somehow it has become popular to have decisions made in caucus.

This practice may tend to thwart individual initiative and slow progress in industry. It may stunt the growth of new ideas, new concepts, and new executives—the life blood of any progressive business.

Just look at the developments that have really been significant in our industrial world and see how many of them were made by group thinkers and people trying to avoid mistakes by conforming to *what they think someone else thinks* is right. Many of the new developments from Edison's light bulb to the Wright Brothers' airplane and Einstein's theory of relativity have been made by people doing things that other people said were crazy, stupid, unworkable, crack-pot. It's shocking to see the growth of a system that blocks individuality.

Yet the evidences of the growth of group thinking, shared responsibility, management "boards" for deciding everything—from whose bolts to use to how to sweep the floor—continue to grow.

Gerard H. Poll, Jr.

—ASSOCIATE EDITOR

Fig. 1—The 1959 Chevrolet.

Finishing Chevrolet Hoods and Fenders

Painting processes used to finish fenders and hoods include careful metal preparation, flow coating of primer, spray application of finish coats, and polish-buffing of final finish to a high luster.

By EZRA A. BLOUNT
Editor

Chevrolet-Norwood Division of General Motors paint finishes fenders and hoods to match car bodies manufactured in the adjoining Fisher Body Division plant, then assembles the complete car.

Since the Norwood, Ohio, plant has been in operation, it has produced more than three million Chevrolet automobiles (Fig. 1). The plant also assembles Chevrolet trucks, building the cab, and finishing the complete assembly.

The plant has a total floor area of 1,062,757 square feet. Three miles of transport conveyor lines move parts through the two-story plant and through the extensive roof-top cleaning, paint finishing, and baking installation. These fa-

cilities were placed on top of the plant as the best solution to the need for substantially increased production facilities.

Steel parts finished in the Chevrolet-Norwood plant and then assembled into a complete car include fenders, hoods, radiator supports, bumper filler panels, miscellaneous small parts, wheels, and certain interior parts. These parts are formed — stamped, drawn, press-formed, welded — in Chevrolet stamping plants and shipped in to Chevrolet-Norwood ready for finishing. They are unloaded from freight cars, which run into the plant, directly into Air-Rite racks which serve as storage racks. They are moved to production areas with a "mule" truck.

First operation in the finishing process is surface finishing (Fig. 2). Dings, scratches, dents and minor damage to the metal surfaces are removed by skillful operators. Special hammers are used, supplemented by electrically driven portable polishers in which flat polishing discs (120 grit) or Behr-Manning Kon Tour abrasive-strip polishing wheels are used. The parts are then hung on a conveyor which carries them to the roof-top cleaning and priming installation.* Hanger spacing on this conveyor can be varied, but generally space between hangers is 32 inches.

Moving at 21 ft./min. on the No. 458 overhead monorail conveyor, parts to be cleaned and phospha-

(*) The building housing this installation and the metal deck, metal floor and insulated metal walls were fabricated and erected by R. C. Mahon Co., Detroit, Michigan.

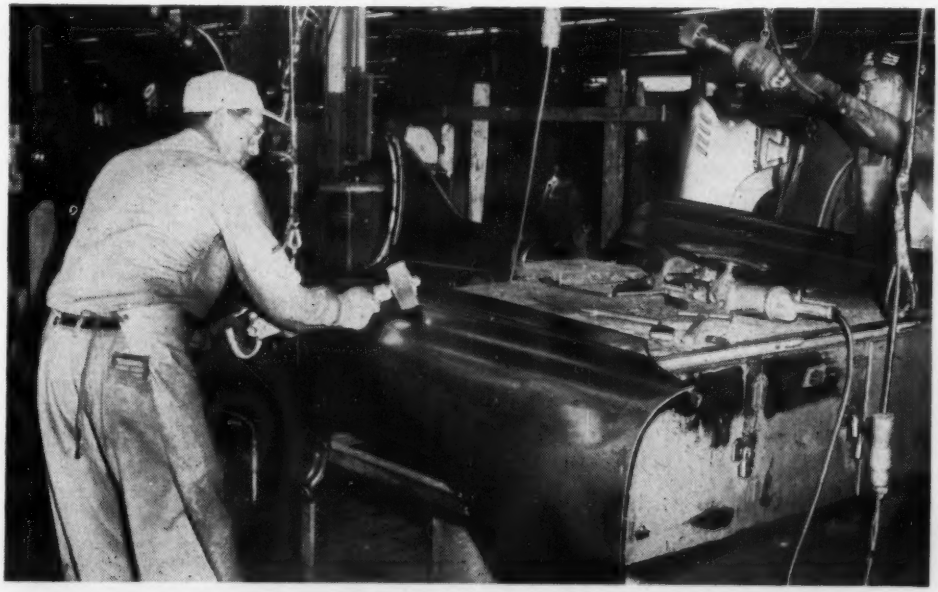


Fig. 2—First operation in finishing is the removal of dents and scratches from fenders and hoods with portable electric polishers using 120-grit emery abrasive wheels and discs.

"Viscosity is controlled automatically by a Bendix automatic recorder-controller . . ."

tized enter the spray cleaning tunnel (Fig. 3). Process cycle in the 150-foot-long washer is as follows:

1. Spray clean one minute with a solution of Parker 521 cleaner (160 deg. F.).
2. Spray rinse for 30 seconds with hot water (160 deg. F.).
3. Spray rinse for 30 seconds (140 deg. F.).
4. Spray phosphatize for one minute with a solution of Bonderite 1000 (150 deg. F.).
5. Spray rinse with water (120 deg. F.) for 30 seconds.
6. Spray rinse for 30 seconds with a chromic acid (Parcolene) solution (130 deg. F.).

Leaving the spray washer, which has a tunnel opening of 4½ by 7 feet, the cleaned and phosphatized parts enter a 50-foot-long Mahon gas-fired convection oven. The drying cycle is 2½ minutes at 380 deg. Fahrenheit.

Parts cool while traveling from the drying oven to the Mahon primer flow coating installation (Figs. 4 and 5). Du Pont 64-1825 black primer is flowed onto the parts as they pass through the flow-coat chamber. Some of the equipment required to control temperature and viscosity of the primer and keep it clean is shown in Fig. 5.

Primer for flow-coat application is drawn from a storage tank and pumped through Cuno 50-micron

Fig. 3 — Sheet metal parts enter spray washer-phosphatizer. Conveyor hangers are built so that conveyor is not sprayed.

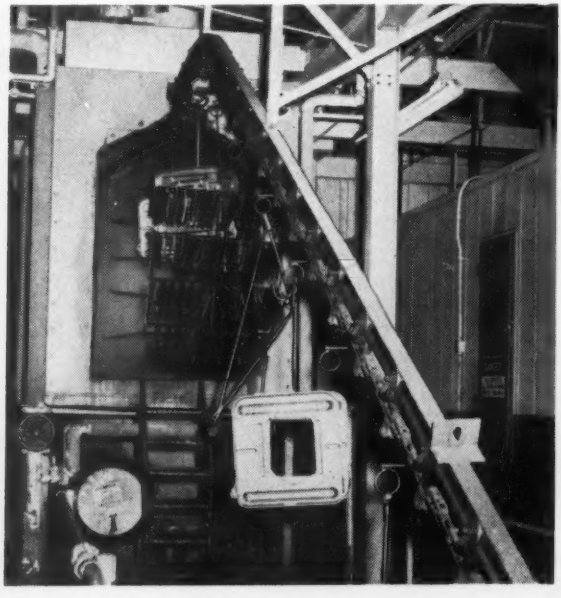
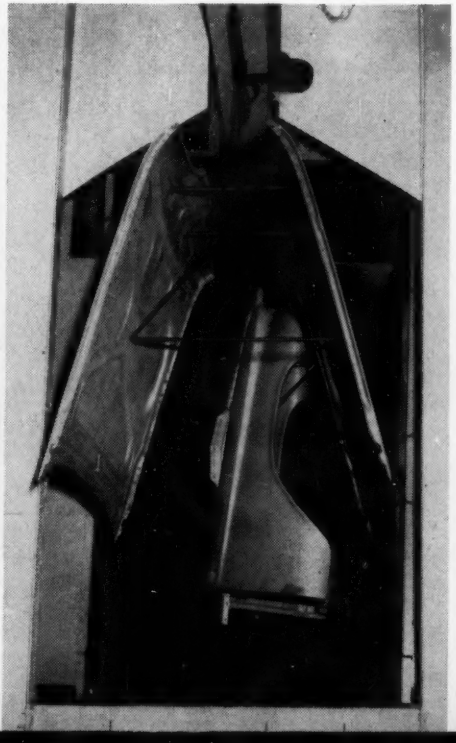


Fig. 4—Cleaned, phosphatized, dried, and cooled parts enter flow coat painting installation, where Du Pont black primer is applied.



filters to the flow-coat nozzles. Primer which flows off the parts drains back into the tank and is circulated constantly through a heat exchanger cooled by water. Primer temperature is thermostatically controlled at all times.

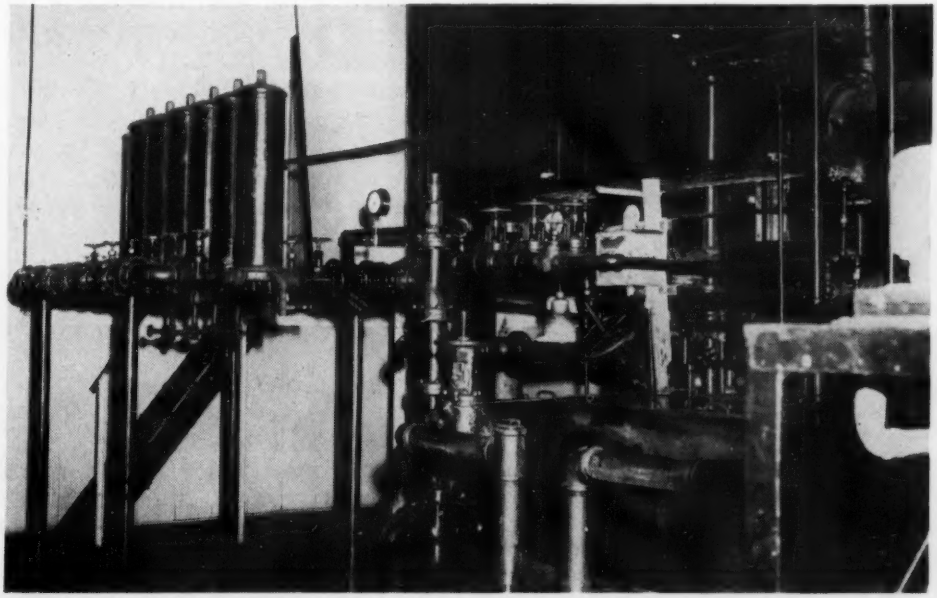
Viscosity is controlled automatically by a Bendix recorder-controller, shown in Fig. 6. This viscosity recorder-controller is connected to an explosion-proof viscosity sensing probe mounted in the paint storage tank. A vibrating reed at the tip of the probe performs the actual measurement.

If the paint viscosity becomes too great (if the paint becomes too viscous) the paint exerts an increased dampening effect on the vibrating reed. This change in viscosity is recorded on the chart of the controller (Fig. 6). At the same time, the recorder-controller actuates a valve and pump which pumps solvent into the paint storage tank until the viscosity returns to the preset value.

At the end of the day's operation, the paint supervisor has a permanent record of the viscosity fluctuations which occurred during the day, and he can tell that the paint viscosity was held between the specified limits at all times.

In addition to the viscosity recorder chart, a daily record of other data concerning the flow-coat priming system is prepared. This process-control sheet contains an hourly record of primer viscosity, amount of reducer added, primer-storage-tank temperature, flow-coat-room temperature, temperature of the in-

Fig. 5—Cuno paint filters, paint and solvent storage tanks, and some of the control valves that automatically keep primer temperature and viscosity uniform. Flow coat installation is walled off from the rest of the installation, although access doors are left open.



". . . a final baked primer coat thickness of 0.7 mil is obtained."

coming air, temperature of the drip room or flow-out chamber.

The sheet also includes data on solvent viscosity, composition of the solvent, circulating pump pressures, flow coat riser pressures, header pump pressures, number of parts painted, total amount of primer used, and total amount of solvent used during the 18-hour period.

Flow-coat-primed parts pass from the flow-coat booth or chamber into a vapor drain chamber or drip room. The conveyor makes three passes through this chamber, keeping the painted parts in the vapor atmosphere for 21 minutes. The chamber is designed so that exhaust fans and dampers maintain a higher fume or vapor concentration in the area through which the primed parts travel first (the first 100 feet). The major part of the primer flow-out occurs there. The entire operation is controlled so that a final baked primer coat thickness of 0.7 mil is obtained.

Fig. 6—Bendix viscosity recorder-controller, product of Cincinnati Div., Bendix Aviation Corp., Cincinnati, Ohio. Chart presents a 24-hour record of primer viscosity. Flowmeters record amount of solvent used for thinning flow-coat paint during period of operation.

Paint which drains off parts in the drain chamber flows into pumps and is pumped back to the paint storage system. Each zone in the drain chamber is flushed down with solvent at the end of the second shift each day. This requires 6 minutes per zone, and makes possible almost 100 per cent recovery of the flow-coat primer. Air supplied to the flow-coat drain chamber and the flow-coat booth is filtered through a traveling screen and dry type filter.

Primed and drained parts pass into a Mahon primer baking oven built as a second element or second "roof" of this rooftop finishing installation. The baking cycle is 34 minutes at 380 deg. F. Parts make three passes through the 165-foot-long by 40-foot-wide oven. This convection oven is heated by means of external gas burners. Air supplied to the oven is filtered.

Primed and baked parts descend on the conveyor to the second floor where they are removed from the conveyor and placed in a bank or scheduled for final finishing. Parts

are scheduled for the final finish line according to the final-assembly-line production schedule.

Parts are inspected, fenders are punched in one of four ways to take four different kinds of moldings. Then parts are sanded lightly as required, tack wiped, and placed on conveyor hangers on the finish coat conveyor at 9-foot intervals. This conveyor carries parts first into a 100-foot-long Peters Dalton water-wash, side-exhaust finish-coat spray booth (Fig. 7).

Here spray operators apply a sealer (0.3 mil thick) to parts which are to receive an acrylic finish, allow a one-minute flashout time, and then apply two coats of the DuPont or Forbes acrylic finish. Parts to be finished in conventional lacquer do not receive the sealer coat. They are given two coats of lacquer. A flashout time of 1 to 1½ minutes between finish coats is sufficient to "set" the first coat so that the second coat can be applied. A finish coat thickness of 2.5 mils minimum is specified.

There are six spray stations in the long spray booth of which four are used for present production. Paint is piped to the spray booth from a central paint-mixing room.

Paint spray guns are fitted with snap-on fasteners so that changes

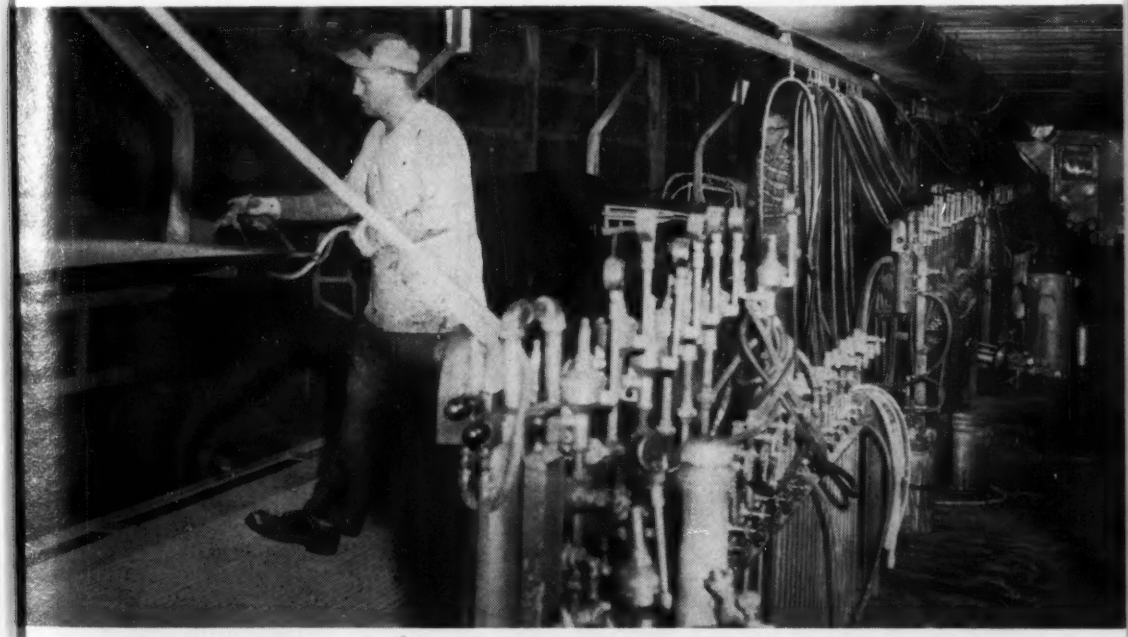


Fig. 7—Spray finishers at four stations in long finish coat spray booth apply two coats of Forbes or Du Pont acrylic finishes in the color specified to the primed, sanded and tacked fenders and hoods. Battery of paint-circulating lines from paint storage room can be noted in foreground. Operators can connect and disconnect guns very quickly. Spray booth has white enameled walls which are wiped down at the end of each shift. Spray booth water reservoir is beneath steel grating. Finish-coat thickness: 2.5 mils.

"The tunnel protects the freshly painted parts from dust and dirt . . ."

for different colors can be accomplished easily and quickly.

The finishing conveyor then carries parts through a totally enclosed flowout tunnel for eight minutes. The tunnel protects the freshly painted parts from dust and dirt in this critical phase of the finishing process. Leaving the flowout tunnel, parts pass upward into and through one section of a Mahon convection oven 18 feet wide and 80 feet long. The baking cycle is 18 minutes at 180 deg. F.

Leaving the oven, parts cool for six or seven minutes, then pass through a Despatch down-draft-exhaust spray booth (Fig. 8), where the second color is applied to two-tone jobs with the aid of metal spray masks.

The painted parts then return to the second section of the baking oven (26 feet wide and 100 feet long), where they are baked for 26 minutes at 200 deg. F. Air for convection ovens is heated by J. O. Ross indirect fired gas burners. An oil standby system is available for emergency use.

Finished parts return to the second floor of the plant where they are polished (Fig. 9). Using a water solution containing some mineral spirits and a synthetic detergent, operators polish painted surfaces

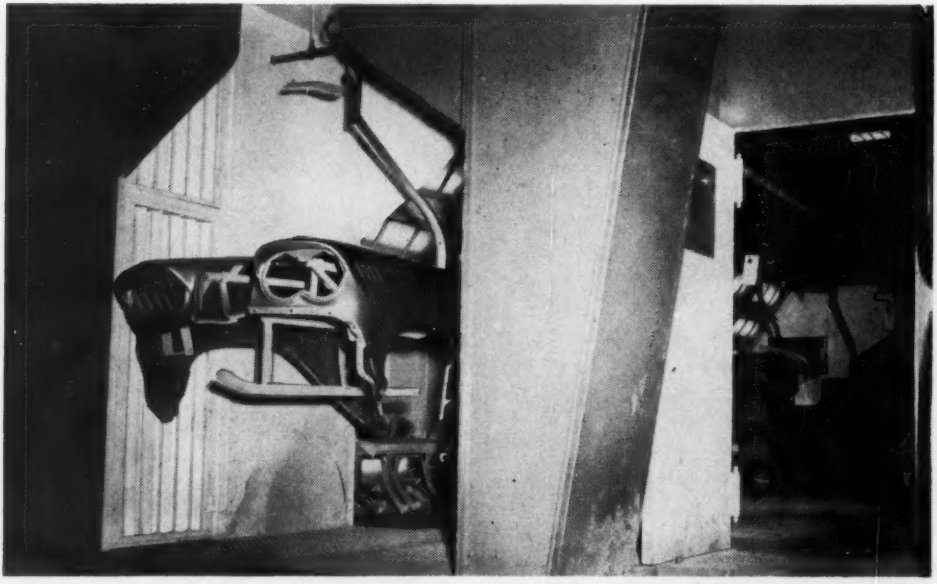


Fig. 8—Pair of fenders leaving "two-tone" booth prior to entering second stage of finish bake oven. This Despatch spray booth has down-draft exhaust with water wash below floor grating. Walls are coated with Liquid Envelope spray booth coating, which is stripped off periodically to remove overspray paint. Metal shields mask parts for second color.

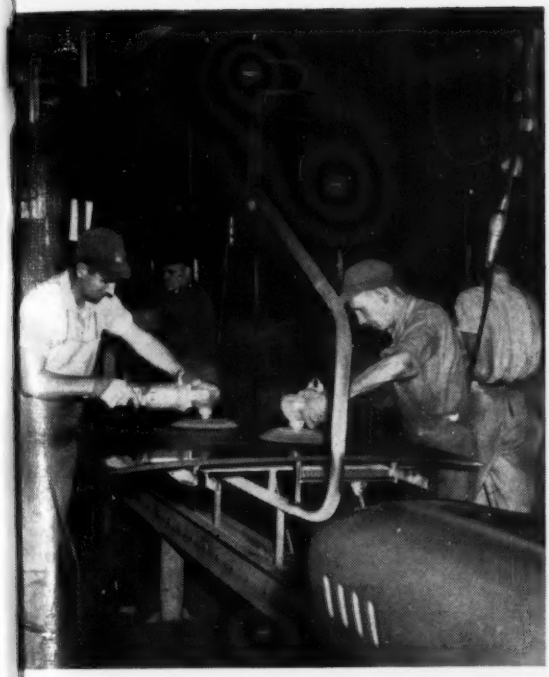


Fig. 9—Painted and baked fenders and hoods receive a careful polishing and buffing before being assembled on a completed Chevrolet. Parts are still on the finish coat conveyor. After this operation is completed and parts removed, finish coat conveyor returns to the loading station. As can be noted, these operations are being conducted in separate booth which is exhausted. Booth has painted metal walls. Paper is attached to lower wall areas with tape. This paper is removed as necessary to keep the area clean.

with 360-grit abrasive paper (for lacquer — 500-emery for acrylics) discs mounted on sponge rubber pads attached to portable polishers. Surfaces are then buffed using Amcor No. 5 wool buffing pads with McAleer Barmax 252 polishing compound.

Buffed, inspected fenders and hoods are unloaded from the conveyor and placed in a "bank" or scheduled for final assembly. Those scheduled for final assembly are placed on a sub-assembly conveyor and receive all the trim, fittings, and other parts so that the hood (for example) can be assembled quickly to the car. Fenders are assembled in pairs together with the grill, headlights, and all necessary trim so that the entire assembly can be placed on the car at one time (Fig. 10).

Assembly-line workers on the first floor of the plant assemble chassis from parts delivered from other departments. When the assembly has progressed to the point where the body is mounted, a Fisher body, produced in the adjoining Fisher Body Div. plant, is lowered from the second floor onto the specified chassis.

As assembly proceeds, the fender

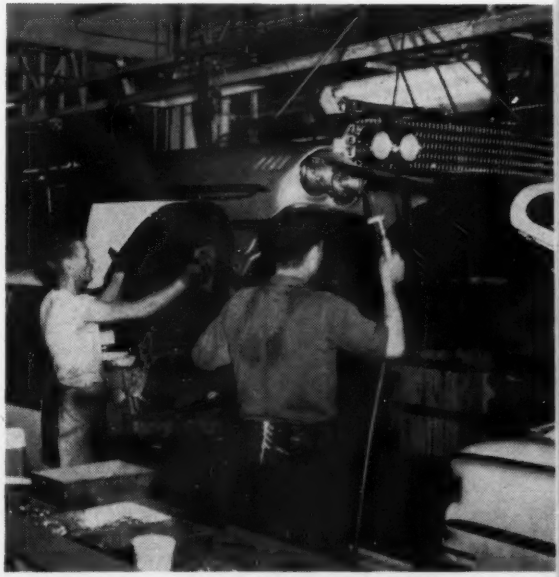


Fig. 10 — A two-tone fender assembly is lowered to the final assembly line and quickly attached to the moving automobile. (Photographs by PRODUCTS FINISHING)

assembly section, built from parts finished at Chevrolet-Norwood and assembled on the plant second floor, is lowered to the final assembly line (Fig. 10). Finally the hood for the car being assembled is lowered from the second floor. It goes without saying that the proper body, fender assembly, and hood must be scheduled so as to reach the proper chassis at the proper time. A Telautograph system schedules bodies, engines, fenders, and hoods so that the correct parts in the correct colors arrive at the final assembly line station in the correct sequence. Plant officials estimate that there are so many engine, body, trim, and color combinations that they could operate two full 8-hour shifts and never assemble two cars which were exactly alike.

ACKNOWLEDGMENT

The author acknowledges with sincere thanks the assistance and cooperation of Courtney Gilbert, paint superintendent, and Manuel Yeida, plant engineer, Chevrolet-Norwood Div., G.M.C., in securing the information contained in this article.

★ ★ ★

Heat and Abrasion Resistant Paints for Rocket Launchers. A report on coatings tested for their resistance to rocket blast flames and abrasion. May be obtained from Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C. 19 pages. Price, 75 cents.

Ceramic coatings appeared superior to other types tested for resistance to rocket blast flame and sand abrasion, according to this recent report.

Test materials included ceramic, silicone, dibutyl titanate, epoxy, and Teflon coatings. Sprayed-on olive drab ceramic and Teflon coatings appeared superior to silicone types. The ceramic type remained nearly intact on aluminum panels heated nearly to the melting point. Zinc dibutyl titanate also showed good resistance.

The coatings were tested to determine their suitability for use on rocket launchers, recoilless rifles and other ordnance equipment.

★ ★ ★

Industrial Nozzle Catalog. A new catalog describes a line of industrial spray nozzles.

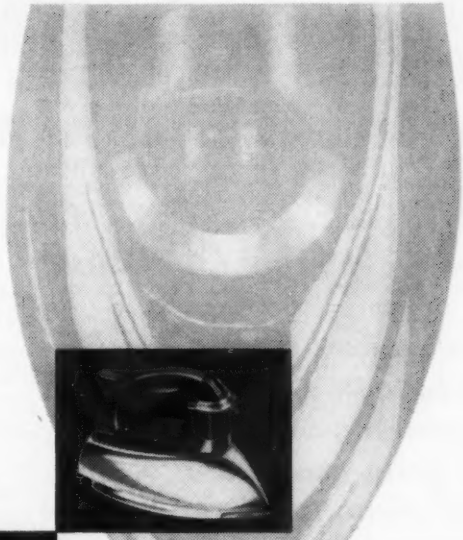
The catalog contains 32 pages of listings and data on nozzles for industrial spraying applications. Data on spray angles, dimensions, types of connections, and capacity vs. pressure for all standard nozzles are presented in tables.

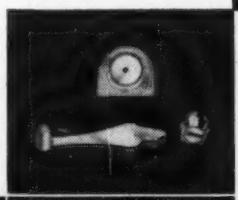
Copies may be obtained by writing on company letterhead to Advertising Dept., Wm. Steinen Mfg. Co., Industrial Nozzle Div., 45 Bruen St., Newark 5, N. J.

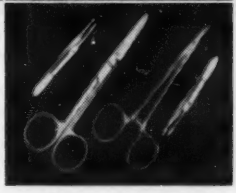
★ ★ ★

Riverfront Story—A Movie. A 15-minute sound and color motion picture tells the story of the R. C. Mahon Company's organization, engineering, plant-operation and field-erection skills. The new film is available free on a loan basis, directly from Mahon, by request on organization letterhead only. R. C. Mahon Co., East Eight Mile Rd., Detroit 34, Mich.

H-VW-M makes everything for nickel plating







Get it all from H-VW-M! Here, at one dependable source, is a complete line of processes, chemicals, equipment and supplies . . . plus expert engineering assistance.

In chemicals and supplies, here are a few examples of what H-VW-M offers . . .

H-VW-M Nickel-Lume and Levelume. These exclusive bright nickel processes combine finish brightness with exceptional ductility, high corrosion protection, economical operation. *Nickel-Lume* is recommended for still tanks, conveyors or barrels; *Levelume* for baths with air agitation and high-density currents.

H-VW-M Nickel Sulfamate Bath. 75% faster than conventional baths—plates up to 0.007" per hour, by operating at current densities as high as 140 asf. Produces a hard, ductile deposit. Process can be operated successfully with or without nickel chloride.

H-VW-M Nickel Sulphate and Nickel Chloride. For dull or high-speed bright plating solutions. Laboratory-tested by H-VW-M to assure consistent high quality. Free from organic and inorganic impurities.

H-VW-M Nickel Anodes. A full line, including all standard and many specialized shapes. New *Lo-Sludge* Anodes are used as auxiliary anodes for smooth, heavy deposition on surfaces with recessed contours. Special alloy corrodes evenly, permitting smooth build-up of nickel on hard-to-plate recessed surfaces.

H-VW-M Anode Bags. A wide variety of styles, shapes and sizes, engineered for top performance in all types of bath and anode conditions. Completely desized and preshrunk. All fabric lots are laboratory-tested *before* bags are manufactured, to assure organic purity.

Ni-Plex Nickel Stripping Compound. Fast-working . . . low in cost . . . easy on basis metals. Safe even for parts containing two or more metals. Cuts stripping costs by an average of 1¢ per square foot of 0.0001" nickel, because it remains stable at highest stripping temperatures.

For information on H-VW-M processes, chemicals, supplies and engineering service, write to us at Matawan, New Jersey.

H-VW-M **HANSON-VAN WINKLE-MUNNING COMPANY**
Matawan, New Jersey
Offices in principal cities

INDUSTRY'S WORKSHOP FOR THE FINEST IN PLATING, POLISHING AND ANODIZING PROCESSES • EQUIPMENT • SUPPLIES

For more data circle 320 on Postpaid Card

Quality Control in Paint Finishing

How to set up specifications for organic coatings and then make sure the specs are followed. Instructions for making tests such as salt spray, color and gloss, color stability, shear hardness . . .

By **HAROLD SHAPIRO**
Chief Chemist
Sylvania Electric Products, Inc.
Electronic Systems Div.
Buffalo Systems Plant
Buffalo, N. Y.

The "sellability" of equipment depends significantly upon appearance or "first impression." This is true of products for commercial or civilian use, and of equipment manufactured for military use.

Credit for much of the appearance of any equipment goes to the finish. The most elaborate, complex electronic gear is not impressive if it is poorly finished. Organic coatings are intended to improve appearance with respect to gloss, color and uniformity. Of course, they must also prevent corrosion or deterioration of the substrate.

At Sylvania, rigid quality control is exercised to produce a durable and attractive finish. We do not want to obtain a finish that is "overtested" or "over-specified," however. A finish should be specified to do a certain job and that job only. For example, there is no need to specify a high-priced alkali-resistant baking enamel when the equipment will not be subjected to alkalis; a low-cost air-dry paint may suffice.

Procedure for Specifying Paints

Long before a piece of equipment is actually finished, we test the paint to be used.

Often when producing military equipment, the paints to be used are specified in the contract.

The military has many qualified products lists (QPL), which give the name of the manufacturer and a paint-identification number. These QPL's are correlated to specific Military Specifications. At Sylvania, we also have our own list of approved organic finishes. To be used on our products, even the government-approved materials have to meet Sylvania standards.

The Military QPL is used to eliminate unnecessary testing of paints. It relieves us of making preproduction-qualification tests such as viscosity, flash point, solids, pigment checks and so on. Any of the military-approved paints which do not lend themselves to production

Table I

CLASS OF PAINT FINISH: SALT SPRAY RESISTANCE

Class	Salt Spray Hours Min.	Application Data
1	None	Non-metallic substrates and metallic substrates where salt spray resistance is not required
2	24	Corrosion protection of metallic substrates for non-military applications
3	48	Corrosion protection of internal metallic parts for military applications
4	192	Corrosion protection of external metallic parts for military applications

Table II

TYPE OF PAINT FINISH: HEAT RESISTANCE

Type	Temperature Rating	Application Data
A	122° F.	Equipment exposed to ordinary room ambient conditions, such as cases and structural parts
B	221° F.	Parts subjected to elevated temperatures such as Class A motors and transformers
C	266° F.	Parts subjected to elevated temperatures such as Class B motors and transformers
D	311° F.	Parts subjected to elevated temperatures such as Class F motors and transformers
E	356° F.	Parts subjected to elevated temperatures such as Class H motors and transformers

***HAROLD SHAPIRO** studied chemistry at the University of Buffalo. He joined Sylvania Electric Products, Inc., in 1952, is now chief chemist at Sylvania's Electronics Systems Division Buffalo operation. Mr. Shapiro has gained a reputation as an authority on chemistry of materials related to the electronics industry. He has written several technical articles on this subject and has lectured throughout the country. Association memberships: Third vice president, Buffalo Branch, American Electroplaters' Society; member of National Management Association.*

"The test panels must demonstrate both the quality of the paint and the ability of the paint department to apply it."

usage or which have defects that would necessitate equipment adjustments—are quickly discarded. Even though a number of paints are on a particular Government QPL, there are slight differences between them. The user may find one superior to another in his processing setup.

Testing Paints

To test a paint, we spray it on six uniform panels. These panels are 4 by 4 inches with a maximum thickness of 5/32 inch and have a ¼-inch hole in the center. They are of the same material as the parts to be painted.

We prepare the panels in exactly the same manner as will be used to prepare the parts themselves. Degreasing, etching, application of chemical or electrochemical coatings or whatever will be done in the future production run is duplicated for the test. Painted panels are air dried, baked or cured to duplicate production-line practice.

Panels are kept at room temperature for 24 hours before testing begins.

The first test is a visual test to check continuity and uniformity of appearance and texture. The coating should be free from surface irregularities such as orange peel, pin holes, sags, stains, and dirt flecks. If the paint has defects which cause any of these conditions, or if the sprayer has done a poor job, the testing ends right there. The test panels must demonstrate both the quality of the paint and the ability of the Paint Department to apply it.

For military applications, finishes are specified by both *class* and *type*. The *class* denotes the salt-spray-exposure time the finish must resist. The *type* denotes the temperature that the finish must withstand. Typical classes and types are as shown in Tables I and II.

Salt-Spray Resistance

Salt-spray tests are conducted in accordance with Federal Standard 151, Test Method 811, for the specified number of hours. (Table I). To pass this test, there must be no corrosion of the substrate after exposure to the salt spray.

Salt spray is an important consideration for military equipment, since such equipment is, in many instances, subjected to this type of corrosive atmosphere. A good example of this is ship-board radar, where the antenna and housings are subjected to continual salt spray.

Color and Gloss

When specific color match is required, the color is specified by standard color-card number in accordance with Fed. Std. 595. In most cases the Federal Standard serves as a good source for standardized colors, but sometimes where special colors are needed, color chips are made up and used as standards for subsequent production. These standards also serve for quick gloss comparisons.

Color is measured both by visual comparisons and by use of a photoelectric Tristimulus Color Meter. The instrument used at Sylvania is a Model 610 Photovolt Reflection Meter. Readings from this instrument make possible accurate color

comparisons. Color variation should not exceed four color difference units when calculated from the photoelectric tristimulus measurements as described in Federal Specification TT-P-141b, Method 623.1.

Gloss is measured by visual comparison and by using the 60 degree specular glossmeter. When compared to the standard sample, the gloss on the test panel should be within plus or minus 10 units. This is measured in accordance with Federal Specification TT-P-141b, Method 610.1. Briefly, a source of light is projected on the painted surface at an angle of 60 degrees. The amount of light reflected is measured photoelectrically. This value is compared to a standardized carrara glass, and from there, it is an easy matter to determine the actual gloss of the paint being tested.

On the production line, standard color and gloss chips used by a competent inspector usually suffice for good quality control. There is little need for precise color and gloss measurements on parts in production when paints and processes used have been standardized by the lab.

Color Stability

Many organic finishes have a tendency to fade after outdoor exposure. As an accelerated test of the finish's ability to resist fading, we subject the painted panels to a high-intensity light source. There must be no objectionable change in color after eight hours exposure at a distance of 12 inches from a mercury vapor ultraviolet lamp. Different areas of the sample are exposed for periods of two, four, six and eight hours with an unexposed portion retained for comparison purposes. (The light source used is a Raymaster High-Power "UVIARC" Ultraviolet Lamp. The bulb is a mercury vapor ultraviolet lamp (No. UA-3, 360W, GE). The unit is manufactured by the George W. Gates Co.

Hydrocarbon Resistance

To evaluate a paint for resistance to hydrocarbon solvents, a finished test panel is immersed in enamel thinner conforming to Fed. Std. TT-T-306 at 77 plus or minus 1 deg. F. for 18 hours, in accordance with test method 601.1 of Fed. TT-P-141b. At the conclusion of the test period, the finish must show no wrinkling or blistering. After 24 hours drying, the portion of the panel which was immersed should be indistinguishable from the portion which was not immersed with regard to hardness, color and gloss. This is a particularly severe test which is used in some instances to single out discrepancies in bake cycles. With many paints

Fig. 1—Charles A. Fix, in charge of Sylvania's Mycology Section, evaluates fungus resistance on an anti-fungus organic finish.

"Anyone . . . can test for this property with a good pen knife and a sharp razor blade."

where various bake temperatures and times are specified, only one combination can yield a finish durable enough to resist the solvent action.

Temperature Resistance

Temperature resistance is important in determining the quality of the finish. Extremes of temperature can severely damage an organic coating. To pass our test, the painted panel must withstand 24 hours of exposure at the rated temperature (Table II) without loss of gloss, color, or physical deterioration such as blistering, film rupture, film shrinkage, or softening. We also test for resistance to cold. The finish must withstand a 24-hour exposure at minus 67 deg. F. with no delamination of the paint from the base material and no evidence of crazing or checking. Upon heating to room temperature, adhesion of the paint to the panel must be comparable to adhesion before testing.

Humidity Resistance

Practically all military electronic equipment is subjected to humidity. We check the finish's resistance to water or moisture by two test procedures.

First we place a puddle of distilled water two inches in diameter on the test panel and allow it to stand for 24 hours at room temperature. The puddle is covered with a watch glass to prevent evaporation. Evaluation is made within two hours after the puddle has been removed. In the second test we subject the panel to 90 per cent plus or minus 5 per cent relative humidity at 100 plus or minus 1 deg. F. Evaluation is made shortly after conclusion of the test. The criterion for acceptance in both tests is that the finish shall not discolor or show any physical deterioration such as film rupture, puffing, or blistering. Twenty-four hours after the initial evaluations, the panels are checked for compliance with color and gloss standards.

Print Resistance

The ability of an organic finish to withstand imprinting by a weight is also a characteristic to be considered. We test the finish both at the rated temperature (Table II), and at room temperature. The rated-high-temperature test consists of placing a piece of eight-ounce cotton duck on the test panel and on that a flat-surfaced one-half-pound weight. The room-temperature test is performed in the same manner, except that a one-pound weight is used. Specimens are examined after 24 hours for any visible imprint of the cotton duck weave. Although this test is more useful for testing paints used in civilian applications —furniture, appliances and so on— it has also proved helpful in military applications. It is one more easily performed test that helps to eliminate inferior finishes.

Adhesion, Knife Test and Cross Hatch

Here is the vital problem in every paint system — adhesion. Without good adhesion, the finest-appearing finish is worthless. Anyone who tests the quality of the finish, from the line inspector to the control chemists, can test for this property with a good pen knife and a sharp razor blade.

The Knife Test consists of drawing the broad edge of a knife blade rapidly and firmly across the surface of the finished test panel. The finish should not peel or chip. This, of course, takes some degree of experience to evaluate. But an experienced man can determine in one stroke the hardness or softness of a paint.

The Cross Hatch Test is made with a razor blade by cutting through the film just to the substrate in a series of parallel strokes followed by cuts at 90 degrees and 45 degrees to the first series. Cuts in each of the three directions are spaced $\frac{1}{8}$ inch apart. The triangular segments of the film should adhere to the substrate and not chip or break in a brittle manner.

Both of these tests are good laboratory evaluation tests on new paint systems as well as "quick and dirty" production-line checks that quality control men can quickly master.

Tape Test

At Sylvania, the tape test is not considered a reliable test procedure. Most tape tests are performed using a "pressure-sensitive tape." This could be anything from a piece of masking tape, which is designed specifically for easy non-damaging removal, to the tightly adhering acetate fiber tapes used to package and seal military equipment. Adhesion of the tape depends upon atmospheric conditions, which always tend to influence the tack of the tape adhesive.

The human element is another variable in the tape test. Results can be changed radically by the manner in which the tape is pressed onto the surface. The male inspector will tend to make the tape stick more firmly than will the weaker female inspector. The manner in which the tape is removed also influences the results. Steadily pulling off the tape will give results much less severe than quickly ripping off the tape.

Abrasion Resistance

We determine abrasion resistance of a paint finish by using a Taber Abraser. This instrument measures the rate of wear of a finish subjected to rubbing abrasion. The test is conducted using Calibrase CS-10 resilient wheels, with a load of 500 grams per wheel. The test is continued until visual inspection indicates that the substrate is exposed at several separated spots in the abraded track. Breakthrough at one isolated spot generally indicates a thinner film at this point or some surface irregularity. The minimum number of Taber abrasion cycles

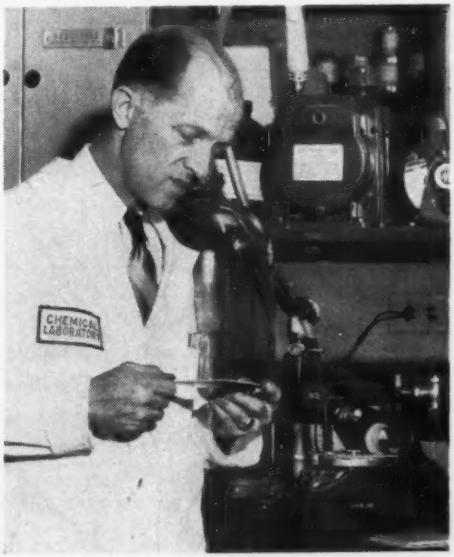


Fig. 2 — F. W. Buchanan, in charge of Organic Finishing Test Section, evaluates a Taber abrasion test. (Photographs courtesy Sylvania Electric Products, Incorporated)

(unless otherwise specified for a particularly severe application) is 500 (300 for clear finishes).

Shear Hardness

The shear hardness test evaluates the finish's ability to resist conditions more severe than "normal wear." It shows the ability of the finish to resist scrapes, gouges, and scratches. Shear hardness should not be less than 500 cycles (300 for clear finishes), as determined by the graduated Taber Scale Beam and calculated by the Taber formula.

The shear hardness instrument is an attachment to the Taber Abraser. It consists of a graduated scale beam with a sliding weight for providing an increase in weight from zero to 1000 grams. The beam is adjustable to the specimen thickness. An increase in beam weight determines that point at which a tungsten carbide cutting tool cuts as wide a groove as possible without exposing the substrate. After the widest cut possible is made, the width of the cut is accurately measured to the closest thousandth of an inch. Calculations are made as follows:

$$\text{Shear Hardness} = \frac{\text{Width of groove in mils}}{\text{Load in grams X 100}}$$

Point-System Evaluation

Abrasion resistance, shear hardness, and adhesion (as determined by the knife test and cross hatch test), all are considered to be important in Sylvania evaluation and quality control tests. But with practically any finish, improving some particular property usually means a loss to some extent of another desirable property. For instance, if the knife test shows the paint to be too brittle, compensation can be made by the paint formulator, but usually at the expense of shear hardness.

After many years of testing, Sylvania chemists devised a point system for evaluation. By using this

Table III

POINT-SYSTEM EVALUATION OF ORGANIC COATINGS

Shear-Hardness Ratings

Less than 450	0 points
450 to 499	25 points
500 and over	100 points

Knife-Test Ratings

Failure	0 points
Marginal	50 points
Satisfactory	100 points

Cross-Hatch Ratings

Failure	0 points
Marginal	50 points
Satisfactory	100 points

Abrasion-Resistance Ratings

Less than 90 percent of the specified limits	0 points
90 per cent to less than 100 per cent of the specified limit	25 points
100 per cent or greater of the specified limit	100 points

Table IV

GROUPS OF TESTS PERFORMED ON SIX PAINTED PANELS

Group 1	*Group 2*	*Group 3*
Color	Corrosion	Temperature Resistance
Gloss		Hot Print
Color Stability		
Group 4	*Group 5*	*Group 6*
Adhesion	Humidity	Puddle Test
Abrasion	Hydrocarbon Resistance	Cold Print
Shear Hardness		

system, a happy medium of properties is possible. A minimum of 325 points is required from the four tests for a finish to obtain an acceptable rating.

The breakdown is as shown in Table III.

In order to make the best use of the six test panels, they are divided into groups and tested in sequence as shown in Table IV. The panels are "preconditioned" at room temperature for 24 hours before testing.

All organic coatings are evaluated by Sylvania specifications in terms of end requirements. We feel that the customer is not interested in how good a paint primer is or how good the top coat is, but rather in how the combination works as a unit. Many people lose track of the fact that the compatibility of the top coat and primer is as important as the compatibility of the primer and base metal. In practically all instances, it is assumed at Sylvania that a finish system must consist of at least one coat of primer plus one top coat.

Chemical Pretreatment Coatings

Another area of confusion to many people in the organic finishing field is conversion coatings — the phosphate and chromate coatings. These coatings are excellent bases for subsequent paint films. For the ultimate in quality, however, these coatings should be considered as an aid to primer adhesion and *not* as a substitute for the primer. Many people feel that the phosphate or chromate coating cancels the need for a primer. To obtain the best results from an organic coating system, however, primer is required.

Conclusion

Any product worth making is worth time and effort to make it better. The money spent in establishing good paint combinations and good processing systems is repaid in full in fewer rejects and less rework. What every customer wants is a quality product at a fair price. The manufacturer wants to ship a product that has a finish that has not been overspecified, but will do the job intended.

A. E. S. Convention Highlights

A list of technical papers and brief description of some of the activities that will take place at the Golden Jubilee Convention of the American Electroplaters' Society, which will be held in conjunction with the Fifth International Conference on Electrodeposition and Metal Finishing and the Fifth Industrial Finishing Expositon.

June 15-19 **Detroit, Michigan**

Technical Program

Monday, June 15

Authors	Subject
Dr. William Blum	*The William Blum Lecture*
Dr. S. Wernick	*Technical Aspects of Pre-Finished Metal*
J. Zucker	*Development and Application of Ultrasonic Cleaning*
Dr. Henry Leidheiser, Jr. and Mrs. Lucille B. Garmon	*Experimental Studies of the Electrodeposition of Metals in Narrow Crevices*

Tuesday, June 16

Dr. A. K. Graham	*A Black Chromium Plating Process*
Prof. Eugenio Bertorello, Dr. I. R. Bellobono, Dr. A. Scarati	*Leveling Power of Copper Sulfate Baths with Complexing Addition Agents*
U. F. Marx and D. Povey	*Plating Zinc on Steel from Pyrophosphate Solution—A Pilot-Plant Investigation*

Authors	Subject
Dr. T. L. Rama Char	*Electrodeposition of Nickel Alloys from the Pyrophosphate Bath*
R. F. Ayres	*Chemical Conversion Coatings*
Dr. R. C. Gibson	*The Metal Surface Conversion Coating as a Paint Base*
A. A. B. Harvey	*The Accelerated Weathering of Organic Finishes*
Dr. Stein and D. H. Lloyd	*Surface Texture: Its Influence on Organic Finishing*
Dr. M. H. Jones, Chih-Yeu Lu, A. F. Mohenheim, J. Zajdowski	*The Influence of Physical Metallurgy and Mechanical Processing of the Basis Metal on Electroplating—Ferrous-Metal Conditions Affecting the Durability of Watts Nickel Deposits*
L. E. Samuels	*The Mechanism of Mechanical Polishing as Related to the Nature of Polished Surfaces*
Dr. Henry Brown and M. Weinberg	*Outdoor Corrosion Results with Chromium-Nickel-Chromium Plate*
Dr. Charles L. Faust, Hugh R. Miller and William H. Safranek	*Improved Corrosion Resistance for Electroplated Zinc Die Castings*

Wednesday, June 17

F. L. LaQue	*Importance of Corrosion Testing*
D. M. Bigge	*Experiences with the Use of the Corrodkote Test*
Dr. J. Edwards	*Sulfur Dioxide Accelerated Corrosion Test —Testing Conditions and Equipment*
C. F. Nixon	*Experiences with the Use of the Accelerated Acetic Acid Salt Spray Test*
M. D. Levin	*Statistical Design and Analysis in the Application of Plastisols*
R. A. Boller	*Water-Soluble Coatings for Metal Finishing*
H. W. Howard	*Epon Resins in the Electroplating Industries*

A.E.S. Convention Highlights (continued) . . .

Authors	Subject
M. Perez	*Vinyl Dispersion Coatings*
Thursday, June 18	
Dr. Abraham Max and M. L. Whitehurst	*The Effect of Flow Rate and Current Density on the Electrolytic Removal Rate of Iron and Copper from a Watts Nickel Solution*
Dr. Erich Laue	*Chromium in Cyanide Solutions and Its Removal*
Dr. E. B. Saubestre	*Electroless Copper Plating*
Dr. F. A. Lowenheim and W. H. Rowan	*Some Aspects of the Corrosion of Decorative Plated Coatings*
A. W. Brace	*European Bright Anodizing Practice*
M. S. Hunter, P. F. Towner and D. L. Robinson	*Hydration of Anodic Oxide Films*
F. Sacchi	*Accelerated and Exposure Tests on Nickel-Chromium Plated Aluminum*
H. Lattey	*Developments in the Sphere of Surface Techniques for Aluminum and Its Alloys —Processes and Materials*
Friday, June 19	
Dr. Pierre A. Jacquet	*Electrochemical Techniques in Modern Metallography*
Robert Mondon	*The Present State of Electrolytic Polishing in Europe*
R. A. F. Hammond and C. Williams	*The Effect of Shot Peening and of Grinding on the Fatigue Strength of Chromium Plated High-Strength Steel*
Dr. H. Spahn	*Some Chemical Polishing Processes—Their Mechanism and Their Application*
G. Abadie and G. Vidal	*Influence of Various Surface Treatments on the Resistance to Fatigue of Two High-Resistance Aluminum Alloys*

Authors	Subject
R. A. Williams	*The Effect of Steel Pretreatments on the Performance of Water-Thinned Coatings*
W. H. McKnight	*Vinyls in Modern Industrial Coatings*
Dr. P. Baeyens and J. L. Melse	*Prevention of Tarnishing of Silver and Copper by Means of Chromate Passivation*
George E. Best	*Chromic Acid Anodizing Characteristics of Wrought Aluminum Alloys*
A. W. Wallbank	*Barrel Plating with Special Consideration to Protection of Thread Diameters*
Dr. H. J. Read	*Ductility in Plated Coatings*
H. D. Hughes	*Grain Size Control in Electroforming*
R. Scott Modjeska	*Plated Metals for Use in Selective Heat Treating*

Plant Visitations

Inspection trips through Ford Motor Company (Tuesday), Chrysler Engineering Laboratory (Wednesday) and General Motors Technical Center (Thursday) are scheduled for conventioneers.

Keynote Speaker

Irving A. Duffy, vice president-Body Group of Ford Motor Company, will present the Keynote Speech at the opening session of the A. E. S. Convention.

Mr. Duffy came to Ford in 1949 from International Harvester Company, where he had directed that firm's postwar expansion program. He joined Ford as purchasing director, was appointed a vice president in December, 1949, and elected to the board of directors in January, 1953. He was appointed vice president of the body group when it was formed in April, 1958. Mr. Duffy also directs Ford Motor's Tractor and Implement Division.

Irving A. Duffy

Ladies' Program

Ladies who accompany their husbands to the A. E. S. National Convention in Detroit this June will enjoy a fine program of their own, planned by the chairman of the Ladies' Committee, Mrs. George Pillsbury.

Program for the ladies includes a luncheon at the Detroit Yacht Club on Monday; a trip to the Dearborn Inn for a luncheon sponsored by Oakite Products, Inc., on Tuesday; a trip through Greenfield Village on Tuesday afternoon; a boat trip on the Aquarama on Wednesday; a luncheon at Devon Gables in Bloomfield Hills sponsored by Udylite Corporation, followed by a style show at the Chrysler Corporation, with a tea sponsored by Chrysler.

50% IMPROVEMENT

for a slight

that's the story on **TOUSEY'S NEW**

SQ DURACOTE

SQ Duracote . . . a NEW Tousey finish with the toughest, most durable film yet produced by this old line company.

Field tests show up to 50% increased resistance to film failure and loss of gloss over normal weather resistant finishes.

You'll profit by using this fine quality finish on your products. 50% more wear means less maintenance.

TOUSEY VARNISH CO.

IN PERFORMANCE

increase in price

truer color for a longer period of time and extra protection for all painted areas. All this for only a slight increase in cost over regular Duracote.

What's more, your present finish can be duplicated in SQ Duracote . . . both in color and method of application.

Tousey products are sold only through Tousey representatives. Write us for name of the representative nearest you.

DURACOTE for DURABILITY

Chicago division:
520 W. 25TH STREET • CHICAGO 16, ILLINOIS • Victory 2-2200

Quad-Cities division:
2500 8TH AVE. • EAST MOLINE, ILLINOIS • PHONE 35295

For more data circle 321 on Postpaid Card

plating leadership ✻

PLATING RESEARCH AT YOUR

world's largest plating supplier

the **udylite** **corporation**

detroit 11, michigan

Your plated product has been made more salable, your markets broader, your profits greater thanks to intensive research conducted by Udylite of Detroit. Finishes, processes and solutions now widely in use stem from this research while many plating procedures that are standard had their beginning in Udylite laboratories. Finer, brighter finishes, greater corrosion resistance, increased volume and lowered costs have resulted. Today there is no other single source from which come so many contributions to the plating industry. To provide you with these benefits, Udylite maintains the wholly owned Udylite Research Corporation from which even now still more advances are on their way . . . from Udylite to you.

COMMAND FROM UDYLITE

...to increase sales and profits

✻ Continuing Research

Exposure testing in progress for more than 20 years is but a single phase of Udylite's continuous four point research program carried on in collaboration with industry.

In addition to these tests others are conducted at an oceanside site and test panels are mounted on cars to travel salt-treated winter streets. Similar panels are subjected to every type of accelerated corrosion test for comparison with other findings.

This counterbalance of testing methods furnishes a wealth of authentic data to guide industry toward better products for better service.

For more data circle 322 on Postpaid Card

Flat Polishing Specialists

Michigan company polishes sheet and coil stock on a job basis . . .

By **EZRA A. BLOUNT**
Editor

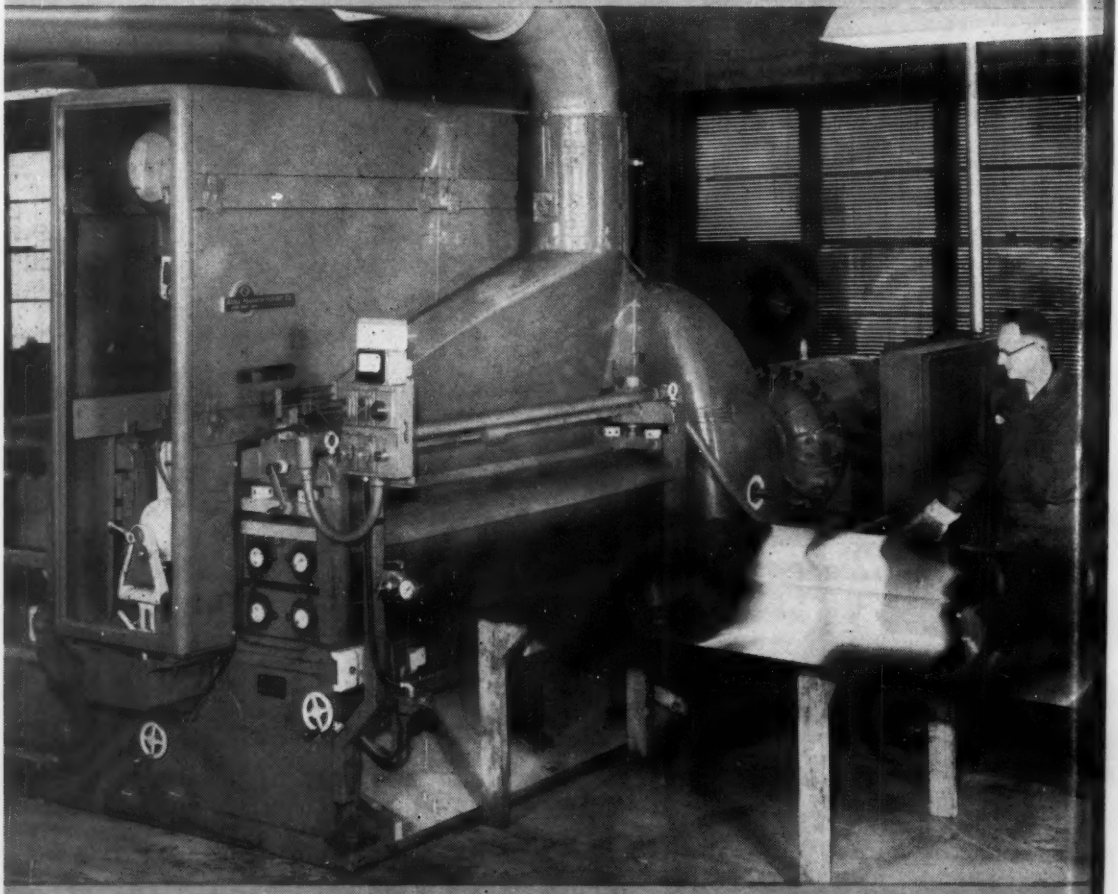


Fig. 1—Single-head 72-inch Acme flat polishing machine. Through the use of this machine, stainless steel and aluminum sheets and coils may be polished to satin finishes specified by the customer. Aluminum panels are often satin finished prior to anodizing.

Production Finishing Corporation specializes in flat polishing sheet and coil stock. The Ferndale, Michigan job shop smooths the surface of steel, stainless steel and aluminum to the microinch finish specified by the customer.

The company is equipped to do everything necessary to prepare metal sheets for forming and other fabricating operations. Rigid quality control assures that the metal delivered to the customer will have the finish specified. Specifications are checked visually and with a Brush Surfindicator, which measures surface roughness and translates it into microinches.

If the customer desires to have the metal phosphatized and coated with a lubricant to aid in forming operations, the sheets are cleaned, phosphatized and coated with a lubricant after polishing.

Sizes Processed

Equipment in the shop can polish sheets and coils of almost any size. A battery of six abrasive belt machines polishes sheets 0.035 to 0.250 inch thick, up to 42 inches wide, and 33 to 120 inches long.

A special machine (Fig. 1), used for polishing wide sheets, will accommodate sheets up to 76 inches wide (actually polishes a width of 72 inches) and 0.018 to 0.250 inch thick.

Coils to be polished can weigh up to 10,000 pounds, be up to 30 inches wide and 0.1875 inch thick.

Polishing Sheet Stock

A battery of six 40-inch Acme abrasive belt polishing machines processes most of the normal-sized stock. The six machines are installed "in line" so that sheets can pass from one polishing head to the next at rates up to 45 ft./min.

Sheets to be polished are stacked (on pallets) on the loading platform shown in Fig. 2. An Acme automatic loader lifts each sheet from the stack and places it on a roller conveyor that carries the sheet to the first polishing head.

A typical cycle for polishing sheet stock that will be used to make automobile bumpers includes two passes through this battery of machines (Fig. 3):

1. Roughing pass. Two machines are fitted with 80-grit aluminum oxide abrasive belts, three machines with 100-grit belts, and the final machine with a 120-grit aluminum oxide abrasive belt. Belts are supplied by Behr-Manning, Michigan Abrasive and Minnesota Mining. No lubricants are used (machines exhausted as shown in Fig. 3).
2. Finishing pass. Two machines are fitted with 180-grit resin-bonded aluminum oxide abrasive belts, four machines with 180-grit resin-bonded silicon carbide belts. Lard oil lubricates the last belt. All others operate without lubricant.

Using this process, steel bumper stock 24¼ inches wide, 86 inches long and 0.118 inch thick is polished to a 4- to 6-microinch finish at a rate of 45 ft./min.

Polishing Coil Stock

Polishing coil stock requires equipment for mounting the coil and rewinding the polished stock, in addition to the standard polishing equipment. Figure 4 shows Production Finishing Corporation's equipment for polishing coil stock. There

are two polishing machines in this installation.

Most of the coil stock processed by the company is polished for one of the following reasons:

1. To remove imperfections and produce a specified surface finish—No. 4 stainless, 100 AO, or a "dairy" finish.
2. To improve the existing finish and produce a brighter surface —a No. 3 Stainless (for appliances) or possibly even a mirror-bright surface.
3. To salvage rejected coil stock by polishing to remove surface imperfections.

Phosphatizing and Coating

Some stock is phosphatized and lubricated so that it will be ready for the forming press when it reaches the customer's plant. Steel sheets that will be used to form bumpers, for example, are cleaned, phosphatized and coated with lubricant immediately after flat polishing. The process is as follows:

1. Workers load sheets into racks which hold the sheets in a vertical position. Each rack holds 40 sheets (size limit: 120 inches long, 42 inches wide).
2. A hoist and overhead conveyor move the racks from tank to tank. (Fig. 5).
3. Solution of Parco 352 (4 oz./gal., 185 deg. F.) removes oils, dirt, polishing residues.
4. Two separate rinses—a flowing cold water rinse and a flowing hot (140 deg. F.) water rinse wash off the cleaning solution.

Fig. 2—Loading platform for sheet polishing line. Acme automatic loader (center) places the steel sheets on a conveyor, which carries the sheets to the first polishing machine (right).

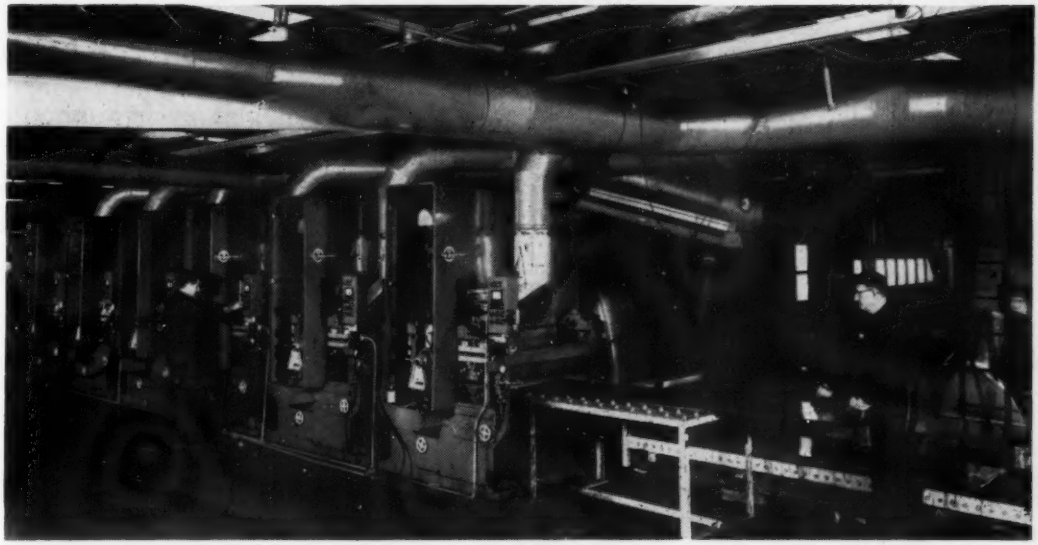


Fig. 3—Six Acme sheet polishing machines comprise the production sheet polishing installation. Surfaces of sheets are inspected visually as they leave the last machine in the line.

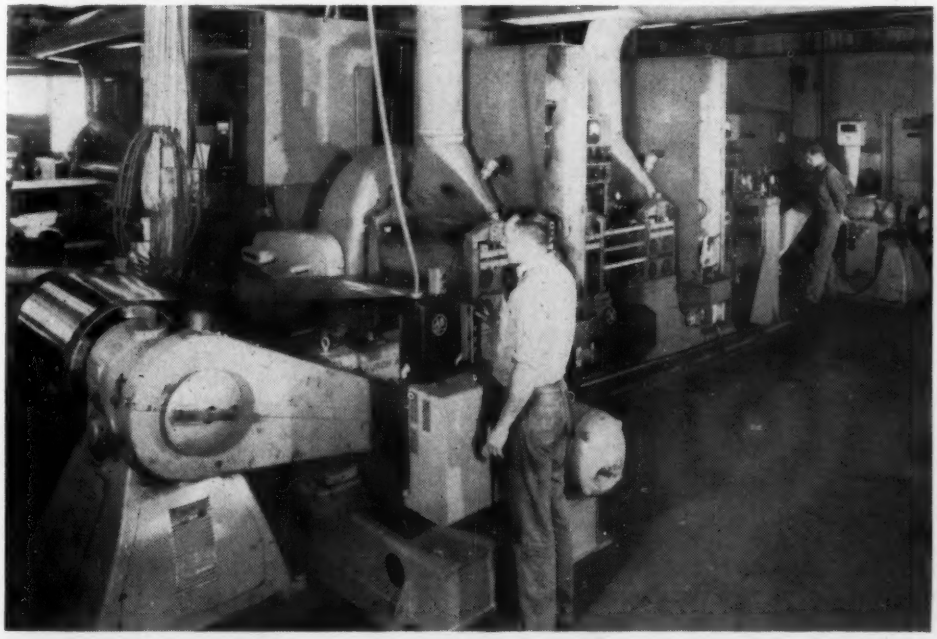


Fig. 4—Production polishing installation for coil stock. Coils weighing up to 10,000 lbs. can be processed. Rejected coil stock is often polished to remove surface defects.

5. A 3-minute dip in a solution of Bonderite 880 (190 deg. F.) forms the phosphate coating.
6. Hot-water rinse removes remaining phosphatizing solution from the sheets.
7. Immersion in solution of Parco Bonderlube No. 246 (204 deg. F.) applies the drawing lubricant.

Racks of coated sheets are allowed to cool and dry. Sheets are then removed from the racks and stacked to be hauled to the customer's plant.

Flat Polishing Applications

Plating. Flat polishing produces the primary requisite for good plating: uniform finish of base metal. Dependent upon plating technique used, finishes down to 4 RMS can be obtained. Equipment for flat polishing is not affected by model changes or final shape of the piece —it still produces a specified surface finish on the flat stock.

Painting. Development work shows that prepolishing produces uniformly finer finish and provides a "tooth" for better paint adhesion. The resultant scratch pattern makes for easier blending during touch-up and reduces amount of buffing necessary.

Deep Drawing. Since prepolishing produces a finer finish than is normally experienced in cold roll steel surfaces, it follows that less die friction will result. Some remarkable results have been achieved with this process, especially on die extrusions.

Acknowledgment: PRODUCTS FINISHING acknowledges, with thanks, the assistance and cooperation of Adam Zimmerman, president, Production Finishing Corp., in the preparation of this article.

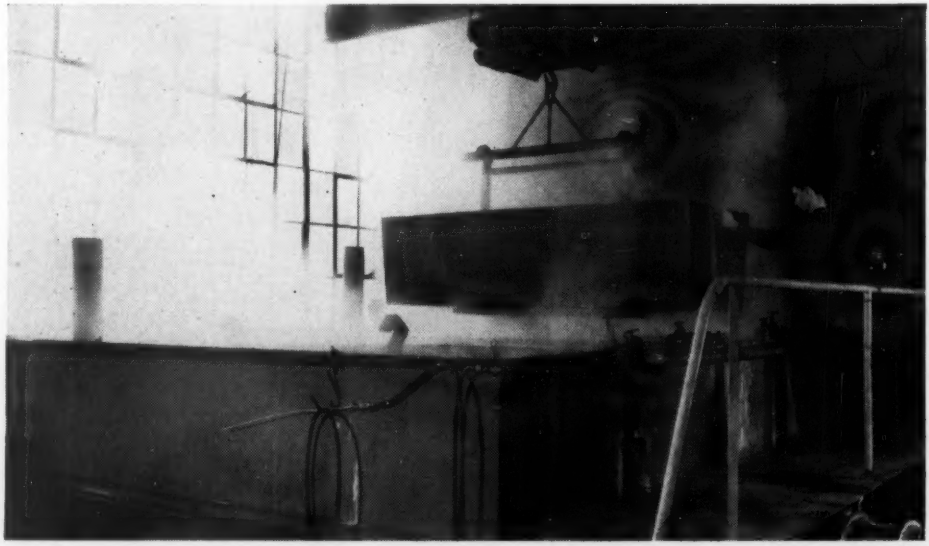
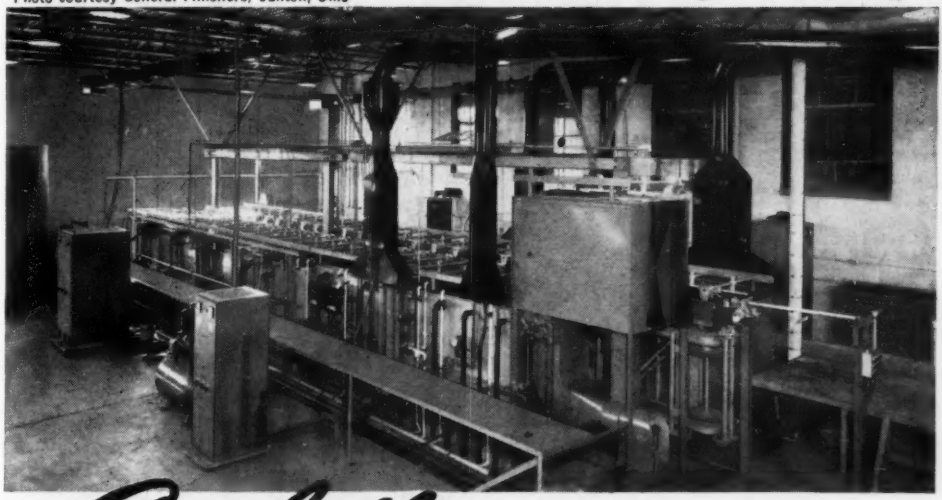


Fig. 5 — Sheet phosphatizing and coating tanks. Operator handles 40-sheet capacity racks with overhead crane. Sheets are inspected after phosphatizing for any surface defects overlooked during previous inspection. (Photos courtesy Production Finishing Corporation).

Complete Versatility *plus* One-Man Operation!

Photo courtesy General Finishers, Canton, Ohio



Cycleflex AUTOMATIC PLATING & ANODIZING MACHINE

QUICK CYCLE CHANGING Simply change positions of pick-up heads on transfer truss and alter tank partitions to suit. No overhauls no rebuilding.

NO CONVEYOR BREAKDOWNS New electro-mechanical control, and safety devices, prevent racks from jamming into tank sides — keep load from dropping if power fails.

LOW HEADROOM All elevating mechanisms operate below top of rack carrier.

Hydraulic operation, standard
Pneumatic operation, optional

SELF-CLEANING CONTACTS Heavy duty type; need little attention—insure positive 6-point connections.

EASILY REMOVED RACK CARRIERS keep tank surfaces clear—a big advantage when manual plating large pieces, and when servicing.

OTHER FEATURES AVAILABLE Automatic unloading from double-spine racks—delayed set-down arrangement to work automatically with cycle where conversion coatings and bright dips are used — built-in by-passing for more than one cycle.

LASALCO, INC.

HOME OFFICE:
2820 LaSalle St. • St. Louis 4, Mo. • PR 1-2990
IN TEXAS:
2805 Allen St. • Dallas, Texas • RI 7-5814

MAIL COUPON NOW

Attach to Company Letterhead

Send complete information on fully automatic Cycleflex

Company.....

Street Address.....

City, Zone, State.....

Signed.....

For more data circle 323 on Postpaid Card

finishing clinic

Suggested solutions to problems submitted by readers. Send your problem to our Editorial Staff. There is no charge.

Tarnished Parts

Question: *We are mailing you four 1¼-inch couplings. Two of these have just been plated and the other two came from storage. Some of these tarnish within one to four months. This happens on only about 30 per cent of the couplings we plate. The inside always remains in satisfactory condition during storage and it is only on the outside that we get discoloration.*

The couplings are hot-dip galvanized on the outside when we receive them. The inside threads are bare steel. We cadmium barrel plate these parts on both the inside and outside. After the cadmium plating, we tumble rinse in two separate cold running water rinses. We then rinse them in 1/10 per cent chromic acid solution, then another cold running water rinse, followed by a hot water rinse at approximately 170 to 180 deg. F., then spin dry.

We have tried quite a few different types of tarnish preventive chemicals with no apparent success.

We would appreciate it very much if you could give us any information as to the cause and the prevention of this tarnishing which we have been experiencing.

C. V. Y.

Answer: You might find it worthwhile to contact the manufacturers of chromate conversion coatings listed on pages 58 and 59 of the PRODUCTS FINISHING DIRECTORY. These companies can suggest specific materials for you to use, and they can also specify rinsing and drying processes which will leave a chromate film on the surface of your parts.

A thorough check of your cleaning, rinsing, and pickling processes is in order. Some platers strip the zinc from galvanized parts prior to plating to prevent trouble caused by the presence of zinc.

★ ★ ★

Hot Dip Galvanizing

Question: *On page 46 of the February issue of PRODUCTS FINISHING you replied to an inquiry about hot dip galvanizing of nails. You spoke of a 750 deg. F. temperature. Since zinc does not melt until it attains a temperature of 788 deg. F., I am sure you intended to mention 850 deg. F. as a reasonable zinc bath temperature.*

Since hot dip galvanizing applies a coating up to ten times the weight of that economically obtained in electroplating, it is very questionable if plating would answer a specification for hot dip galvanizing.

K. S. F.

Answer: You are quite correct in pointing out the typographical error on page 46 of the February issue of PRODUCTS FINISHING; namely that the temperature of the zinc bath should have been 850 deg. F. instead of 750 deg. F.

With reference to your comment that electroplating would not answer a specification for hot dip galvanizing, again you are quite corect. However,

many times the customers of job plating shops are not exact and specific in their requests, so that they obtain a coating with better properties than they actually require. A good zinc plate on steel nails would hold up for a long time in normal service.

★ ★ ★

Latex Paint

Question: *We are interested in an article on page 28 of the March issue of PRODUCTS FINISHING which discusses latex paint.*

Is this latex paint used as a prime coat? We are interested in a latex paint that can be used for a prime coat. Kindly send us a list of paint manufacturers.

J. J. G.

Answer: Latex paint can be used as the primer. You will find the names of a number of manufacturers of primers in the enclosed copy of the PRODUCTS FINISHING DIRECTORY on pages 176-179.

★ ★ ★

Coating or Protective Ink for Printed Circuits

Question: *We are looking for a protective coating or ink to be used in producing printed circuits.*

This material is to be used for protecting printed circuits or parts of printed circuits in the plating baths and should be resistant to gold and silver solutions.

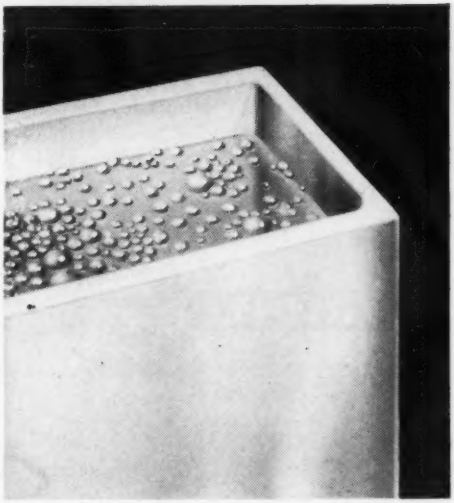
It should be applied by silk screen printing.

We would also like to know how to remove the coating.

E. L. N.

Answer: Information on protective ink for printed circuits can be obtained from the companies listed under "Silk Screen Supplies" on page 192 of the PRODUCTS FINISHING DIRECTORY.

ONLY ACOUSTICA ULTRASONIC CLEANERS HAVE MULTIPOWER!



The Multipower transducer multiplies the power and efficiency of ultrasonic action. Cleaning is faster, labor costs are lower. Acoustica ultrasonic cleaners are unequaled in quality and value. Off-the-shelf in capacities from 1 to 75 gal. or custom built to 5000 gal. Expert engineers can help you with your cleaning problems.

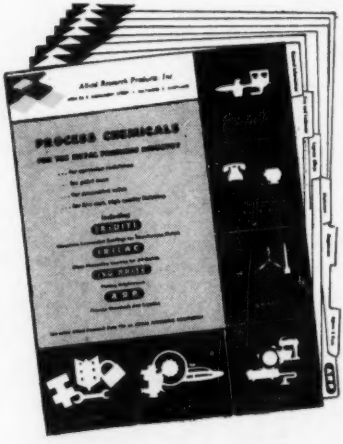
Send for further information.
Acoustica Associates, Inc.
26 Windsor Ave., Mineola, N. Y.

acoustica
LEADER IN ULTRASONIC RESEARCH
LOS ANGELES AND NEW YORK
For more data circle 324 on Postpaid Card

FREE DATA FILES

METAL FINISHING PROCESSES

A complete line of quality products and processes developed primarily as a result of helping manufacturers like yourself solve their metal finishing problems. If one of our present products does not meet your needs, we'll be glad to work with you to find an answer to your problem.



IRIDITE® Chromate Conversion Coatings for Non-Ferrous Metals

IRILAC™ Clear Protective Coatings for All Metals

ISOBRITE® *Chemically Different* Plating Brighteners

ARP® Process Chemicals

CHEMICALS & SUPPLIES

Prompt service on a wide variety of daily-use necessities for the plating room, delivered from warehouse stocks strategically located in cities in metalworking areas.

FLAT-TOP® **ANODES** in copper and zinc

LECTROCOP® **FLAT COPPER ANODES**

CADMIUM, WHITE BRASS AND TIN ANODES in most efficient shapes
Acid Replacements, Buffs, Chemicals, Cleaners, Maintenance Materials

NICKEL RECASTING SERVICE

Ask your Allied Field Engineer about our Subscription Plan which combines your new nickel purchases with a service to recast *your* butts and spears, resulting in substantial savings.

on

Allied Research

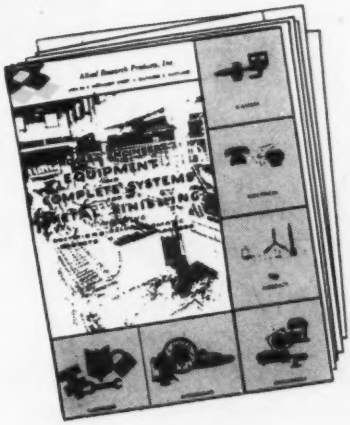
LINES

LOOK FOR THE DIAMONDS—SIGN OF FINISHING QUALITY

EQUIPMENT & COMPLETE SYSTEMS

for Metal Finishing

Process Engineered—Single pieces of equipment or all equipment necessary for a finishing operation . . . evaluated, designed, fabricated, installed and tested to match exactly your particular process. Ask about our *Process Engineering Service.*



WAGNER RECTIFIERS—Silicon and Selenium, built to exacting specifications for long life, trouble-free service.

WAGNER AUTO-LOADERS for fast, economical transfer of racks and parts, conveyors to plating machines, between conveyors.

Automatic and Semi-automatic Plating Machines
Barrels, Tanks and other equipment

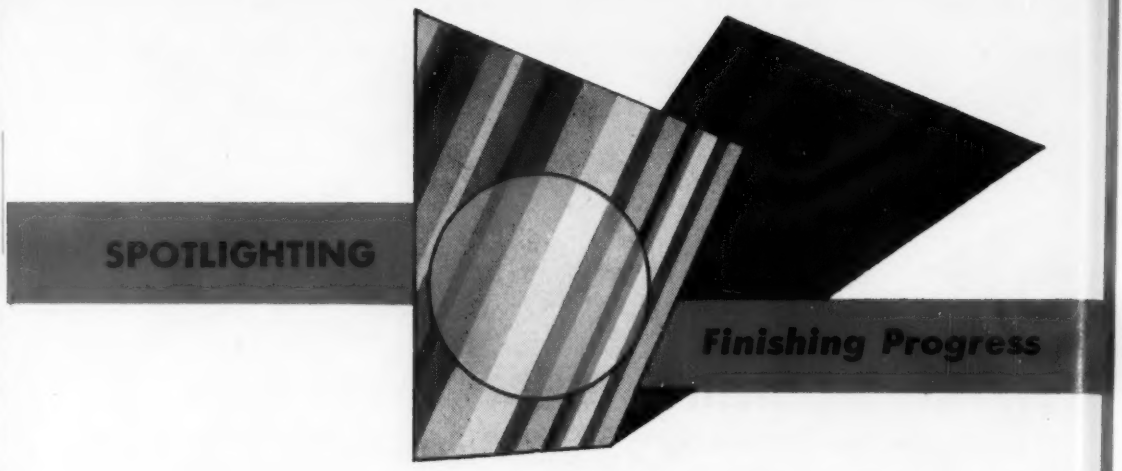
WRITE TODAY FOR COPIES of these useful files describing technical details of our complete line, OR, phone your Allied Field Engineer. He's listed under "Plating Supplies" in your 'phone book.

Allied Research Products, Inc.

4004-06 EAST MONUMENT STREET
BALTIMORE 5, MARYLAND
Branch Office: 400 Midland Avenue, Detroit 3, Michigan

Chemical and Electrochemical Processes, Anodes, Rectifiers, Equipment and Supplies for Metal Finishing

For more data circle 325 on Postpaid Card



An Effective Protective Coating for Molybdenum

Plated coating protects molybdenum from high-temperature oxidation . . .

Molybdenum is much stronger at high temperatures than steel. It would make an excellent material for fabricating turbine blades and other components that must stand up at high temperatures. But molybdenum can't be used under these conditions just as it is because it oxidizes too rapidly.

Seal the surface of molybdenum with some protective coating and the problem would be solved. Molybdenum's high-temperature strength could be utilized.

Not just any coating will do, however. First of all, the coating itself must resist oxidation. It has to withstand high temperatures. And it must be non-porous, for any imperfection, even a tiny pore, results in rapid oxidation of the molybdenum beneath the surface — so rapid that all the molybdenum would be gone within a few hours.

Researchers at the National Bureau of Standards recently developed a coating for molybdenum that meets these requirements. D. E. Couch and his associates of the NBS staff, working on a project for the Navy Bureau of Aeronautics, found that a composite electrodeposited coating of nickel over chromium protects molybdenum from high-temperature oxidation.

The two-layer coating prevents oxidation of molybdenum for more than 1000 hours at 1800 deg. F., over 300 hours at 2012 deg. F.

Plating Procedure

Etch the molybdenum with a 1:1 solution of concentrated sulfuric and phosphoric acids. Plate one mil of chromium on the molybdenum (bath temperature, 185 deg. F., current density 1115 a.s.f.). Etch the

Once you use it you'll Order... Again... and Again... and Again!

Every can filled with a full weight of extra high quality 99.75+% Chromic Acid. Prompt delivery made from ample factory and nearby distributor stocks.

PAINTS · PLASTICS · CHEMICALS · BFC

BETTER FINISHES & COATINGS, INC.

268 Doremus Avenue, Newark 5, N. J. · 2014 East 15th St., Los Angeles 21, Calif.

For more data circle 326 on Postpaid Card

At last—an economical, long-lasting surfacing material that fully meets the tough demands of plating room floor service! New corrosion-proof Penntrowel surfacing compounds were developed by Pennsalt to repair concrete and cement surfaces in its own plants, which make strong acids, alkalis and solvents. Proved on the job, Penntrowel is now available to help you save time and money in your plating room.

Penntrowel is easy to use—you just trowel it on. It cures overnight to an impermeable, chemically-resistant surface. Its cost is amazingly low.

Get Full Details

Write today for Penntrowel Bulletin CP-627 and installation cost data.

Corrosion Engineering Products Dept. 680

Pennsalt Chemicals
ESTABLISHED 1850

PENNSALT CHEMICALS CORP. Natrona, Pa.

Penntrowel is a trade-mark of Pennsalt Chemicals Corp.

For more data circle 327 on Postpaid Card

newly plated surface with a 1:1 solution of hydrochloric acid. After a nickel strike, plate with seven mils of nickel. The nickel should be deposited from a Watts-type bath at 20-47 a.s.f.

Durability Studies

Several experiments checked durability of the specimens. To test adhesion, the specimens were bent until fractured. The plating adhered tenaciously (usually the molybdenum itself broke before a fracture occured between the electroplated layers).

NBS researchers checked high-temperature oxidation resistance by exposing the specimens to air at 2012 deg. F. until the coatings perforated or until a white smoke of

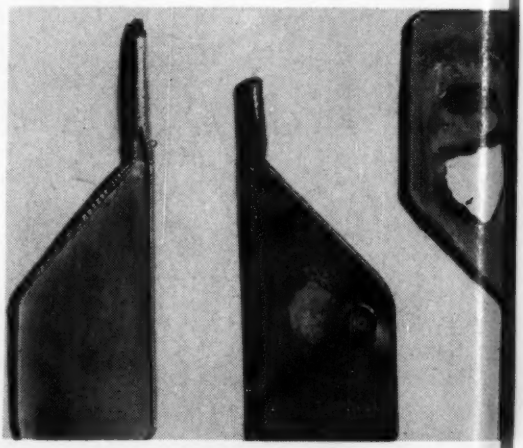
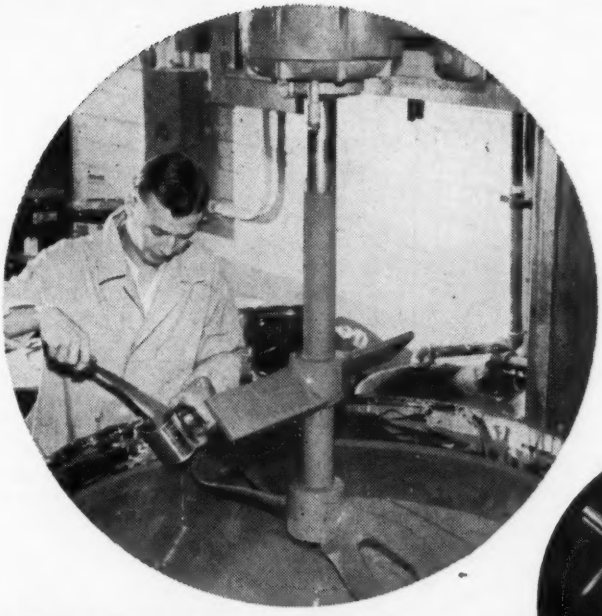
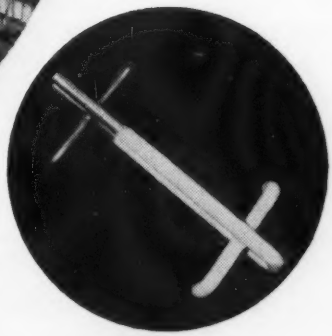
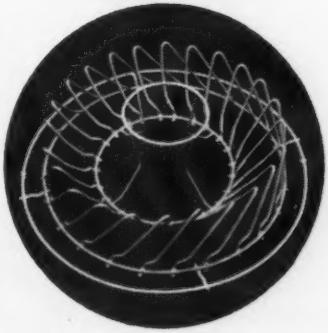


Fig. 1—Typical test panels of molybdenum coated with the composite chromium-nickel coating developed by the National Bureau of Standards. The first panel has not been heated while the other two have been heated for 300 hours at 2012 deg. F. The difference between these last two shows the variation in samples prepared under identical conditions.







COATING STEEL?

REYNOSOL CAN DO IT BEST!

There's a special Reynosol formulation for your coating problem. And if it's steel you're coating you'll be interested in the extra benefits that only Reynosol can offer you.

What are they? Greater resistance to temperature . . . truest color control . . . greater tensile strength . . . lower total cost.

Let Reynolds Chemical show you — specifically — how Reynosol can do *your* coating job better.

REYNOLDS CHEMICAL PRODUCTS COMPANY

REYNOLDS CAN COAT IT — IF ANYONE CAN!

Whitmore Lake, Michigan • Phone Hickory 9-9361
DIVISION OF STUBNITZ GREENE CORP.

For more data circle 328 on Postpaid Card

molybdic oxide appeared. At this temperature the coating lasted for an average of 300 hours. At 2192 deg. F. oxidation began sooner than at the lower temperatures.

How Coatings Fail

After the coatings had been exposed to air oxidation at 2012 deg. F. for varying lengths of time metallurgical examinations revealed the causes of failure. Mr. Couch and his associates found three underlying causes: subsurface oxidation, grain-boundary oxidation and edge separation.

Subsurface Oxidation

Subsurface oxidation, which causes the coating to fail by oxidation beneath the coating surface, apparently is caused by atmospheric oxygen that diffuses through the

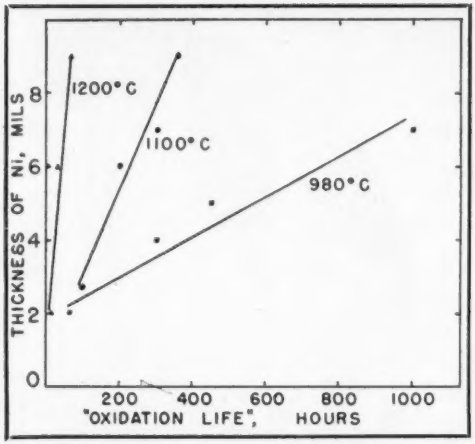
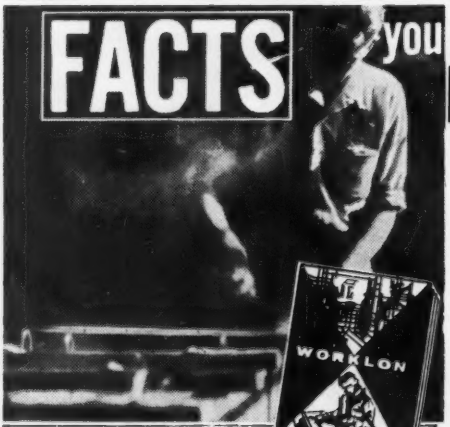


Fig. 2—Effect of temperature and nickel thickness on the length of time molybdenum protected by the chromium-nickel coating can withstand oxidation. Oxidation is prevented for over 1000 hours at 1800 deg. F. and for 300 hours at 2012 deg. F.



FACTS you should know about INDUSTRIAL APPAREL

Fact #1 — Acids, caustics and other damaging chemicals spell speedy **ruin** for ordinary work clothes of cotton or wool.

Fact #2 — **Worklon** industrial apparel, specially made of DuPont Dacron, Union Carbide Dynel and DuPont Orlon, actually **resists** acid and chemical deterioration . . . resists this damage up to **50 times longer** than ordinary garments. This has been **proved** time and time again by government and industry usage tests.

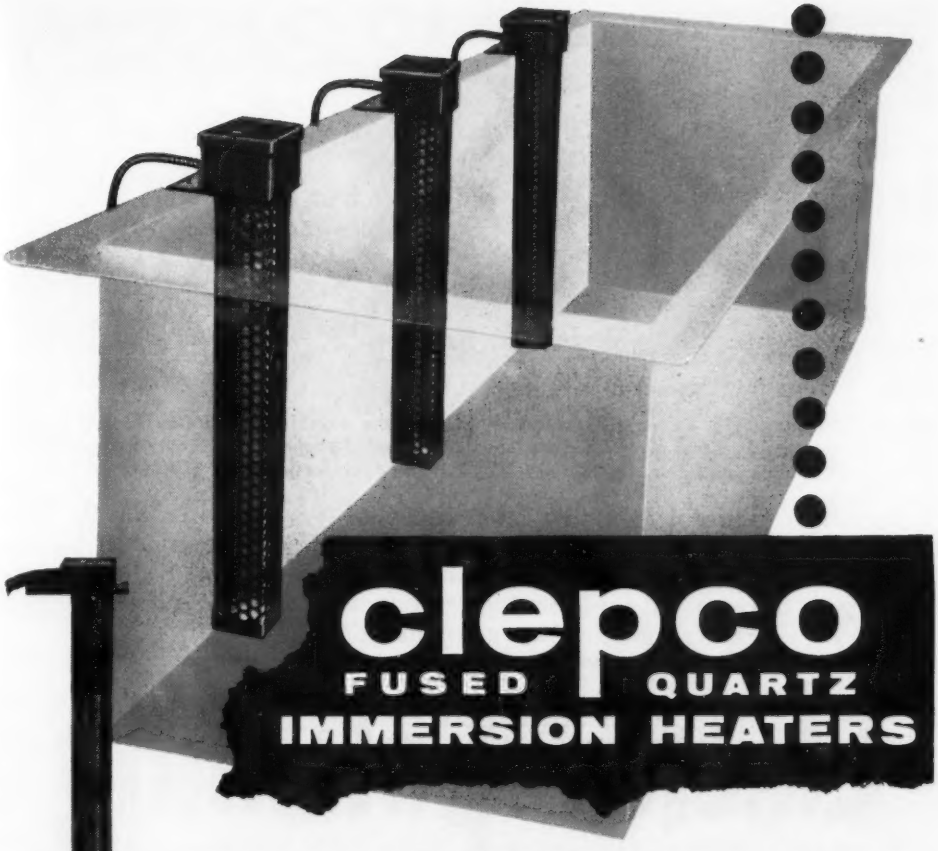
Fact #3 — The use of Worklon industrial apparel **saves as much as 93%** on your yearly work clothes costs. This, too, has been **proved** year after year in hundreds of plants and laboratories from coast to coast. To confirm the tremendous savings that Worklon affords, send for new illustrated catalog and comprehensive laboratory reports—yours **FREE!** Also included is an informative section on **lint-free** acid and caustic resistant clothing. Mail coupon today!

Worklon, Inc., Dept. PF-59
253 West 28th St., New York 1, N.Y.
Kindly send new Worklon catalog FREE.

name_____
co. name_____
address_____
city_____ zone____ state_____

WORKLON
Acid and Caustic Resistant Industrial Apparel

For more data circle 329 on Postpaid Card



FAMOUS THROUGHOUT THE PLATING INDUSTRY

For Quality, Efficiency, Low Cost Operations

OVER 100,000 INSTALLATIONS

For alkaline or acid heating jobs, you can depend on
CLEPCO ELECTRIC IMMERSION HEATERS

CLEPCO STEEL and STAINLESS HEATERS
will meet all your specific needs.

Low Heat Density — Long Life — Vapor-proof junction Box.

See Your Plating Supply House.

SEND FOR COMPLETE INFORMATION

THE CLEVELAND PROCESS CORP.

1965 EAST 57TH STREET • CLEVELAND 3, OHIO

For more data circle 330 on Postpaid Card

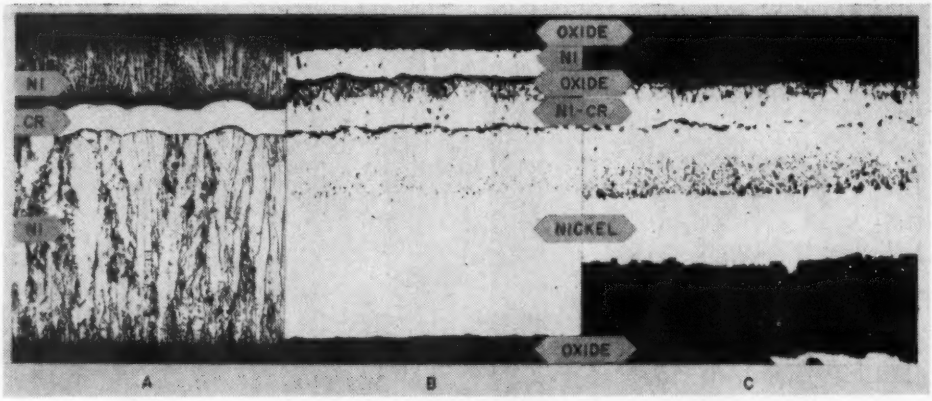


Fig. 3—Micrographs showing electrodeposited nickel-chromium-nickel in cross section. 'A': initial sample with coating. 'B' and 'C' show the extent of oxidation at 2012 deg. F. after 70 and 300 hours, respectively, at this high temperature. (100X)

nickel plate. This oxygen then attacks the nickel-chromium alloy beneath the nickel plate.

Oxygen trapped in the coating would be a natural suspect as a cause of subsurface oxidation, but this possibility was ruled out after specimens heated in a helium atmosphere evidenced no subsurface oxidation.

Electro-polishing

Concentrates for

Aluminum and Alloys
Copper and Alloys
Carbon Steels
Stainless Steels
Plus Custom Concentrates for other metals

for fast, low cost

Burr Removal
Size Control
Corrosion Resistance
Micro-Inch Improvement
Electro Machining
Electroplate Adhesion

Electro-Glo

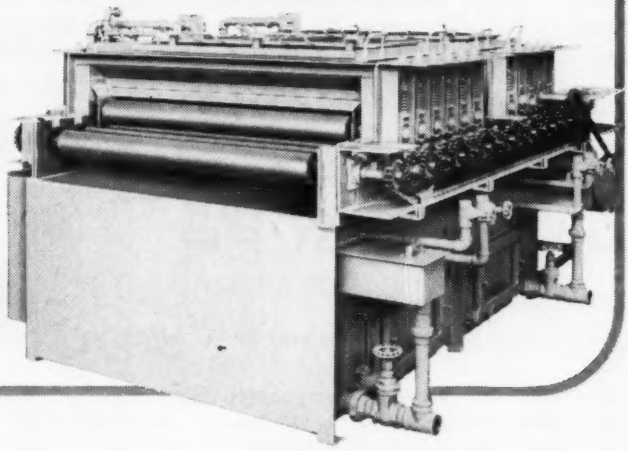
Electro-Glo produces finishes from satin to mirror-bright. We'll be glad to process your sample. Electro-glo offers nationwide service and delivery in carboys, drums and tank trucks.

Electro-Glo Company, 621 South Kolmar Ave., Chicago 24, Ill.

For more data circle 331 on Postpaid Card

BEST CLEANING METHOD *for SHEETS OF GLASS!*

...or SHEETS OF METAL!



PROBLEM: To economically wash, rinse and dry 4′ square sheets of heavy plate glass which are used for molding sheet plastic. After cleaning, a wax type mold release must be sprayed onto one side of the glass and the wax must be removed before mold is re-used.

SOLUTION: This A-F stainless steel Cleaning and Finishing Machine with power-driven rubber rolls which advance the glass molds through all operations. Upper rolls are individually spring loaded for adjusting tension. Cleaning and rinsing are accomplished by A-F super-sprayed solution and power-driven rotating brushes. Easy access is provided to all parts without disturbing adjustment of rollers or brushes.

Just another example of A-F engineering ingenuity . . . Whatever *your* particular cleaning or finishing problem—write us—first! We'll be glad to submit our proposal.

Why not write us today?

A-F

A-F *ENGINEERED*

Cleaning and Finishing Machines

Plant-Wide Conveying Systems

THE ALVEY-FERGUSON CO. • 636 Disney Street • CINCINNATI 9, OHIO

For more data circle 332 on Postpaid Card

Plating on Molybdenum . . .

In further support of this explanation, tests show that the low-chromium alloy that forms where the nickel and chromium plates meet is more easily oxidized than pure nickel. Therefore this alloy is more susceptible to oxidation than the outer pure nickel layer.

The subsurface oxide forms more readily on curved surfaces and heavier nickel coatings than would be necessary to protect a flat surface are required in such cases.

Grain-Boundary Oxidation

The boundaries of metal crystals are more vulnerable to oxygen attack. Hence, as its name implies, grain-boundary oxidation follows the boundaries of the grains.

Edge Separation

Edge separation occurs in the chromium-nickel diffusion layer when a specimen is alternately heated and cooled several times. This failure results in an actual gap between the layers.

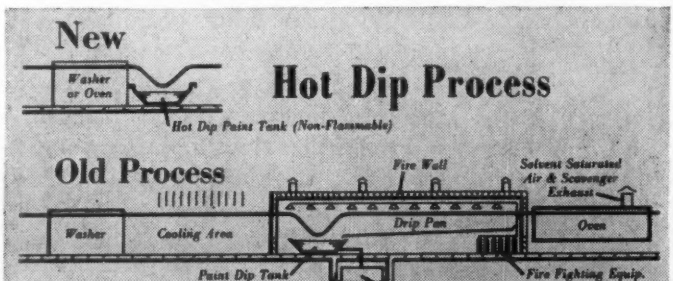
Molybdenum Has No Effect

Actually the defects that cause failure of this coating are not caused by the presence of molybdenum. They would occur regardless of the basis metal. When an electroformed nickel specimen is plated with chromium and nickel the same

NEW
PAINT SAVER

Revolutionary Hot Dip Process.
David-Ludwig Company solves your PAINT FINISHING problems.

This hot dip process has greatly simplified paint dip operations with resultant savings in *paint usage, floor space* and *initial cost.* The process consists of preheating the article and dipping it into a paint operating at 160° F. Leaving the tank the solvent is instantly evaporated from the paint by the heat radiating from the article. This provides *quick drying, uniform thickness* and *drip-free coat.* Since the solvent used is trichlorethylene the system is *fireproof*, providing *safety* for plants and employees. Contact A. D. Ludwig, Vice President, for additional information.



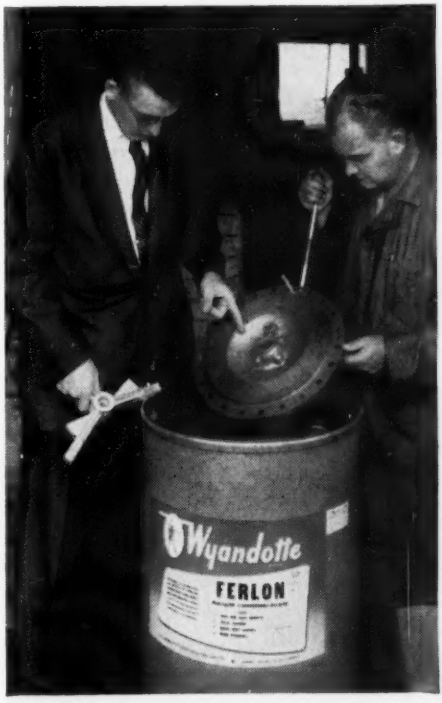
David Ludwig CO. TW 2-1100
14290 Goddard Avenue • Detroit 12, Michigan

Manufacturers and Installers of:
Finishing Systems
Ventilating Systems
Dust Collecting Systems

For more data circle 333 on Postpaid Card

Is rust on precision parts a problem in your plating department?

FERLON REMOVES RUST WITHOUT HARMING METAL!



Wyandotte Representative Wm. Heinecke (left), and C. D. Roberts, Chief Chemist at A. O. Smith Corporation's Pacific Coast Works at Los Angeles, examine rust-free iron castings. A. O. Smith uses Wyandotte FERLON in soak tank — also adds it to the electrocleaner to enhance smut removal, improve detergency, prolong cleaner life.

THAT'S RIGHT! When damaging rust goes to work on steel parts, you can save time and replacement costs by using Wyandotte FERLON, alkaline derusting compound. That's because FERLON, unlike acids, removes rust quickly WITHOUT INJURY TO SOUND METAL —makes it ideal for use on expensive, close-tolerance machined parts!

For example, at A. O. Smith Corporation's Pacific Coast Works, a simple immersion in FERLON effectively removes heavy rust from large machined cast-iron parts. In addition, FERLON in the electrocleaner has resulted in much cleaner, smut-free castings. Cadmium plating is much brighter and of a higher quality.

Improve *your* plating by using FERLON for rust and smut removal. Call in your Wyandotte man, today, for a demonstration. Or write direct for complete details. *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Also Los Nietos, California. Offices in principal cities.*

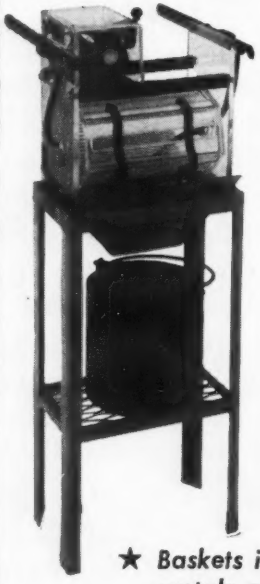
Wyandotte CHEMICALS

J. B. FORD DIVISION

The Best in Chemical Products for Metal Finishing

For more data circle 334 on Postpaid Card

STUTZ



PORTABLE PLATING BARRELS

★ *Baskets in perforated metals or wire mesh.*

★ *Load/Unload Stand for convenient and fast handling of work load.*

The Stutz Portable Barrel is made in 3 standard sizes with cylinders having inside dimensions of 6" x 12", 8" x 18" and 10" x 18" I.D. Smaller upon application. Standard openings are 3/32". Smaller or larger openings can be furnished as required.

Write for Catalog and Prices

We Invite Your Inquiries

THE STUTZ CO.

4410 Carroll Ave., Chicago 24, Ill.

Serving Industry 35 Years

For more data circle 335 on Postpaid Card

types of failure are noted: subsurface oxidation, grain-boundary oxidation and edge separation.

Small amounts of molybdenum diffuse through the composite plate after prolonged heating, but cause no difficulties. A bar of molybdenum plated with two mils of chromium and 14 mils of nickel was heated in hydrogen to check diffusion of molybdenum. After 600 hours one to two per cent of the molybdenum had diffused to the surface. Although this metal could be detected through 10 mils of nickel, no structural changes were found. Apparently small amounts of molybdenum that diffuse into the surface do not affect the grain structure of the chromium-nickel alloy coating.

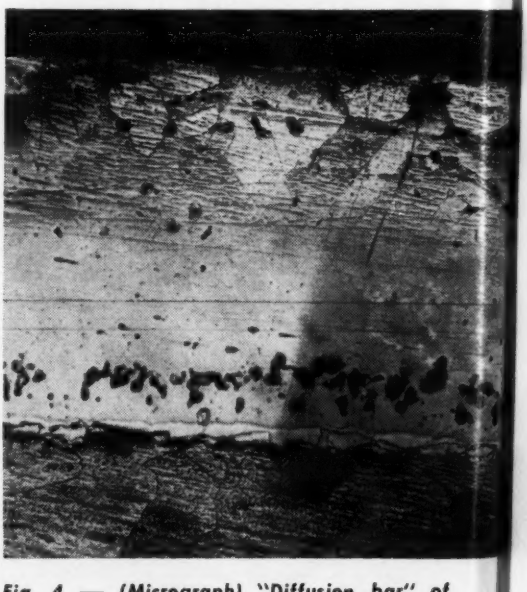


Fig. 4 — (Micrograph) "Diffusion bar" of molybdenum plated with 2 mils of chromium and 14 mils of nickel, after 600 hours of heating at 2012 deg. F. At this stage, one to two per cent molybdenum has diffused into the outer layers. (100X) (Photographs courtesy National Bureau of Standards.)

"Local" Businessman . . .

your SOLVENTS and CHEMICALS GROUP salesman

Although he's an extremely important man in an organization embracing 17 plants throughout the country, your Solvents and Chemicals Group salesman is an established local businessman. His home phone number is on his card—you can count on his help in any emergency. Highly trained, with a thorough understanding of his products' end-use, he has a genuine, friendly interest in your problems . . . gets his products to you—quickly! For "Just around the corner" service and a single source of supply for high-quality products from the nation's leading producers, see this man when he calls . . . **your Solvents and Chemicals Group salesman is a good man to know.** ——————→

Aliphatic Petroleum Naphthas, Alcohols and Acetates, Alkanolamines, Petroleum and Coal Tar Aromatic Solvents, Chlorinated Paraffins, Chlorinated Solvents, Glycerine, Glycols and Glycol Ethers, Ketones and Esters, Plasticizers, Resinates, Rosins, Terpene Solvents, Waxes.

Solvents Chemicals Group Member

THE SOLVENTS AND CHEMICALS GROUP, 2540 WEST FLOURNOY STREET, CHICAGO 12, ILLINOIS

Buffalo, Bedford 1572 • Chicago, SEeley 3-0505 • Cincinnati, ELmhurst 1-4700 • Cleveland, CLearwater 2-1100 • Dallas, FEderal 1-5428 • Detroit, WAlnut 1-6350 • Erie, 5-4486 • Fort Wayne, Anthony 0213 • Grand Rapids, CHerry 5-9111 • Houston, ORchard 2-6583 • Indianapolis, MElrose 8-1361 Kansas City, CHestnut 1-3223 • LaCrosse, 2-0134 • Louisville, EMerson 8-5828 • Milwaukee, GReenfield 6-2630 • New Orleans, VErnon 3-4666 St. Louis, GArfield 1-3495 • Toledo, Jordan 3771 • Windsor, Ont., Canada, CLearwater 2-0933

For more data circle 336 on Postpaid Card

Metals Memos

News about metals and metal products . . .

Smoother Screws

Operators of automatic screw machines have been switching to leaded steel to prolong life of tools and produce products with a smoother finish. U. S. Steel recently opened new Bessemer leaded steel production facilities at its National Tube Division Works in Lorain, Ohio, to meet demand resulting from the fact that 46.6 per cent of all steel bar stock used in screw machines in 1958 was leaded, compared to only 25 per cent in 1957. Lead is added to steel used for such applications at the rate of seven pounds per ton.

Gold Gripe

An old "Forty-Niner" would never believe it, but there are times when discovery of gold is an unfortunate thing.

Specifically, gold can be a contaminant in high-purity steels. This happens when the precious metal is mixed in scrap that is later processed into high-purity steel.

F. N. Joyce, manager of scrap and salvage purchases for Allegheny Ludlum Steel Corporation, noted the seeming paradox in a speech before the Metals Dealers Division of the National Association of Waste Material Dealers.

Citing a typical case, Mr. Joyce described an incident in which unwanted traces of the yellow metal were found in a truckload of stainless steel scrap. Source of the gold: stainless steel fountain pen points with gold tips, which had been rejected from a production line.

Faster Foil

Printers and other processors who use aluminum foil in long, continuous rolls will no longer have to slow or stop their machinery to cut the heavy splice area produced by heat-sealed adhesives used to join rolls of aluminum foil.

A new ultrasonic joining method developed by the Aluminum Company of America and Aeroprojects, Inc., makes possible an inconspicuous seam that does not result in "skipped" areas when it runs through a printing machine.

Joining method makes use of ultrasonic energy to remove natural oxide film from the foil. Metal then flows together to form true metallurgical bond less than 3/32 inch wide and essentially as strong as the parent metal.

For better finishing at lower cost...

Planned, Periodic,

PERSONALIZED

Metal Preparation

SERVICE

from Pennsalt

Pennsalt's exclusive Metal Preparation Service Plan gives you complete, planned service geared to the needs of modern high-speed operation. From a nation wide staff of specialists, you get aid in analyzing new surface preparation needs . . . help in installing equipment and training personnel . . . periodic check-ups with complete recommendations for improved operation . . . laboratory analyses of your special problems . . . advice on thrifty purchasing . . . fast emergency service. Pennsalt's "system approach" to metal finishing provides a complete line of quality processing compounds and automatic surface treating machines . . . and service that makes sure your machines and chemicals always work closely together.

Write Today for your copy of this booklet, or ask your Pennsalt representative for more information on the Pennsalt Metal Preparation Service Plan. Write Dept. 154.

SEE US AT THE INDUSTRIAL FINISHING EXPOSITION, BOOTH 7C.

METAL PROCESSING DEPARTMENT

PENNSALT CHEMICALS CORPORATION

3 Penn Center, Philadelphia 2, Pa.

...a better start for your finish®

Pennsalt Chemicals ESTABLISHED 1850

For more data circle 337 on Postpaid Card

Deadline News . . .

POLISHING PRODUCT...

A finishing material called "Scotch Brite" is made by impregnating a tough nylon web with microscopic abrasive particles. A product of Minnesota Mining and Manufacturing Co., the new material can be used for metal blending, cleaning or finishing operations. It is said to produce consistent results from beginning to end of a run. Minnesota Mining will make the product for lathes, conveyorized polishing machines, hand operations.

BAGWELL JOINS H-VW-M BOARD...

Charles E. Bagwell has been elected to the board of directors of the Hanson-Van Winkle-Munning Co., Matawan, N. J. Mr. Bagwell joined H-VW-M in 1956 as chief engineer, took charge of all equipment design and engineering for company's extensive line of automatic finishing equipment. In 1958 he was appointed vice president in charge of engineering, and a year later was elected vice president of the Equipment Division, with responsibility for equipment engineering, manufacturing and sales.

DRY PAINT...

A powdered paint made of Shell Chemical's Epon resin will soon be marketed by various paint companies. It will be used as the coating material in a "dry" process which uses heat and flow of air instead of solvents.

The powdered resin is kept suspended in a cloud-like consistency by air flowing upward through the container. Object to be painted is heated so that coating particles that touch it melt and adhere. Baking smooths the coat of paint, gives it gloss.

Springs and products with knife-like edges are typical of hard-to-coat parts that can be coated uniformly.

Process for applying the powdered coating was invented in Germany, is licensed in the U.S. by Polymer Process Industries, Reading, Pa.

EATON MANUFACTURING EXPANDS STAMPING DIVISION...

Eaton Manufacturing Company's Stamping Division will spend approximately 500,000 dollars for additional plant space and equipment to be used in producing bright-finish trim parts for next year's automobiles.

E. M. deWindt, general manager of the large independent trim producer, said that the move is necessitated by increased demand for company's anodized aluminum trim for 1960 cars. To be added: 22,000 square feet of floor space, new anodizing and nickel-chrome plating equipment.

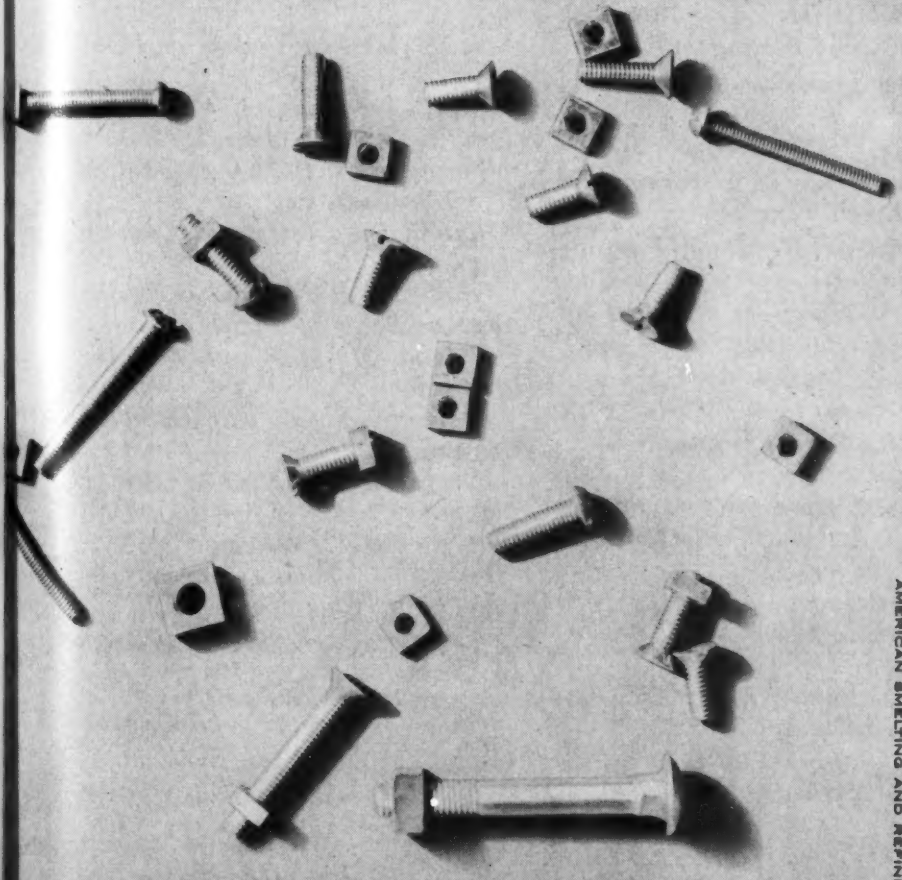
For more data on advertisement on opposite page, circle 338 on Postpaid Card ——→

Your finest work starts with Federated Plating Materials: No Federated plating material is approved for marketing before it has proven its quality through continuing Asarco research. Thus top performance is assured.

This policy of research and testing has rewarded the plating industry with Conducta-Core lead anodes which have greater throwing power, yet last three or four times longer than other lead anodes. Cadmax, addition agent for cadmium plating, is another example of superior materials. So too is Zimax for zinc plating, Nimax, a nickel plating brightener, and new Conmax, a conversion coating for cadmium and zinc plated parts. All do a better job at lower cost.

Your Federated representative or distributor will be glad to document this superiority. And you'll prove it for yourself when you standardize on Federated materials. Federated Metals Division, 120 Broadway, New York 5. In Canada: Federated Metals Canada, Ltd., Toronto and Montreal.

FEDERATED METALS DIVISION OF



ASARCO

AMERICAN SMELTING AND REFINING COMPANY

Federated products for the Plating shop include ANODES: Copper; lead, including the famous Conducta-Core; zinc, tin, tin-lead, cadmium, brass, silver. NICKEL SALTS: Constant quality control assures full nickel content and identical plating characteristics from every lot. PLATING ADDITION AGENTS: Cadmax for still or barrel cyanide cadmium plating; Zimax liquid or powder; Nimax for low cost bright nickel plating; Conmax, a conversion coating, for cadmium and zinc plated parts.

Reprints Available

Limited quantities of reprints of the following articles from PRODUCTS FINISHING are available to readers without charge.

A New Theory to Explain Stress Corrosion Cracking of Stainless Steel.

Airless Spray Painting: Machinery Manufacturer Cites Advantages.

Aluminum Siding Painted and Formed from Continuous Coil Stock.

Automobile Bumper Plating.

Bright Silver Plating.

Brighter Prospects for Brass and Copper.

Cadillac Fights Corrosion.

Characteristics of Chlorinated-Rubber-Based Finishes.

Compact System for Painting Metal Cabinets.

Drapery Hardware Finished by Plating and Painting.

Finishes Tested by Sun and Weather.

Finishing Facilities for a Modern Railroad.

Finishing Floor Registers and Grilles at The Auer Register Company.

High Production and Safety Planned Into Sheet Metal Finishing System.

How the Paint Warmer Aids Finish Application and Quality.

How to Apply Plastisols by the Dip-Coat Method.

How to Select and Use Contact Wheels.

How To Clean Electrotypes Before Chromium Plating

Job Shop Uses Electrostatic Spray.

Low-Pressure Hot Spray Painting.

New Process for Plating on Light Metals.

Plastisol Coating of Wire Products.

Plating and Paint Decorating Zinc Die Castings.

Plating Die Castings in Conveyorized Plant.

Points to Remember in Using Abrasive Belts for Finishing.

Pre-Cut Masks Speed Tractor Production.

Properties and Uses of Catalytic Coatings.

Recover That Plating Waste!

Roller Coating Line Finishes Seals for Steel Strapping.

Selecting Cleaning and Surface-Preparation Equipment.

Treatment of Plating Wastes by Ion Exchange.

Water-Dispersed Paints for Product Finishing.

Westinghouse Uses Time Study to Increase Output.

Write on company letterhead to:

PRODUCTS FINISHING, 431 Main Street, Cincinnati 2, Ohio

For more data on advertisement on opposite page, circle 339 on Postpaid Card

for the most

eye catching finish

on any material

nacromer®

synthetic pearl essence

With Nacromer, it's easy to create unusual finishes . . . eye-catching finishes which become a sales feature for your product. Nacromer is formulated for use with practically all coating vehicles . . . is applied by almost any coating method. It can be used on wood, metal, plastic, paper, leather and many other materials.

If your product can benefit from a truly distinctive finish, use the coupon to learn more about how Nacromer can help.

get the facts
. . . mail this coupon now

THE MEARL CORPORATION
41 EAST 42nd STREET, NEW YORK 17, N. Y.
WORLD'S LARGEST PRODUCERS OF PEARL ESSENCE

THE MEARL CORPORATION
41 EAST 42nd STREET, NEW YORK 17, N. Y.

WE WANT TO COAT:.....
(MATERIAL)

OUR COATING VEHICLE IS:.....

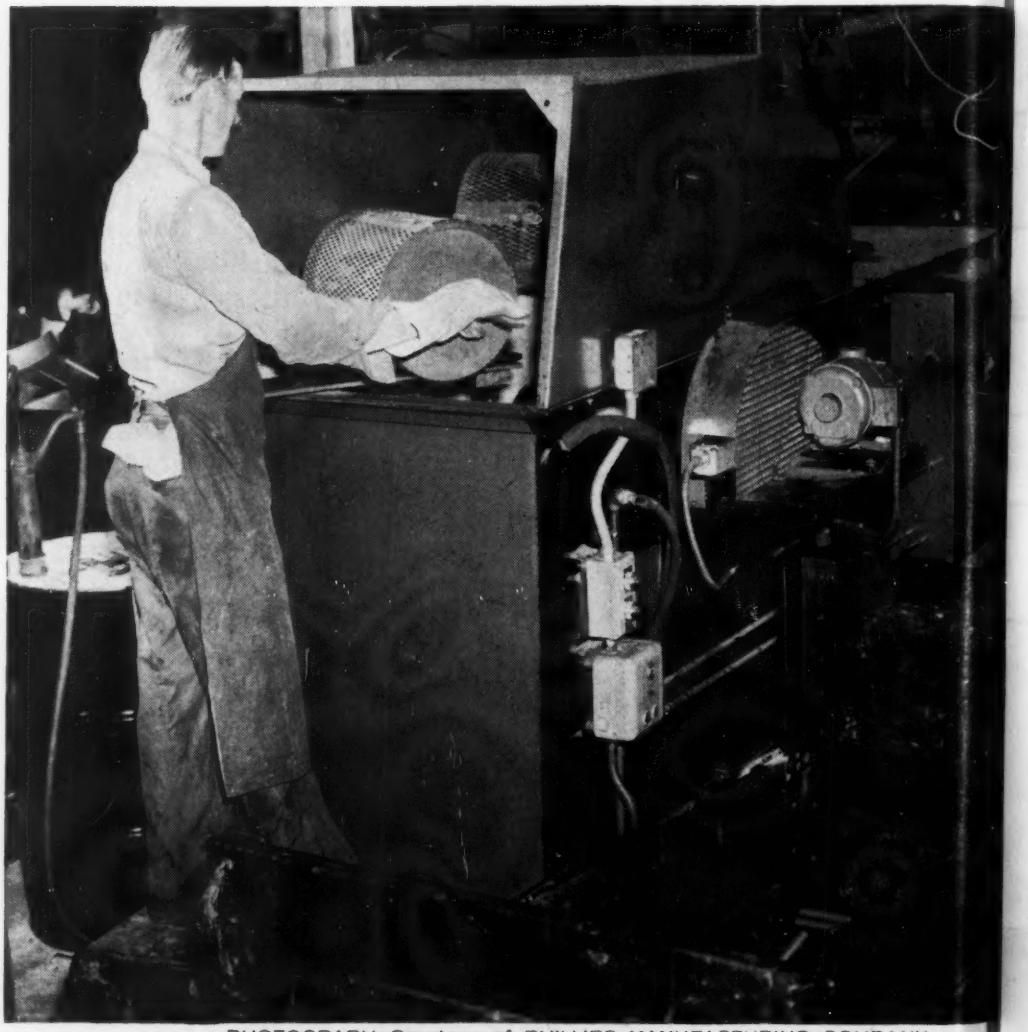
NAME.....

COMPANY.....

ADDRESS.....

CITY..... ZONE..... STATE.....

Vapor degreasing-



PHOTOGRAPH: Courtesy of PHILLIPS MANUFACTURING COMPANY

The new Phillips Rotomatic with liquid dip permits strict control of cleaning cycles. In addition the back end of the tank, above the boiling sump, can be used as a straight batch-type degreaser.

we can show you how to save more money, get better cleaning results with the right degreasing cycle

Vapor degreasing digs out soils other methods can't touch. Handles all part sizes and weights. Requires less space, effort and maintenance. It's safe, fast, flexible . . . and work comes out stain-free, etch-free, warm and dry—ready for your next operation.

But *your* cleaning operation calls for its own degreasing cycle. And that's where DIAMOND TECHNICAL SERVICE comes in.

We'll test-clean a sample for you! Diamond Solvent Specialists will analyze your cleaning problems and help you select the sample for test cleaning. Then they'll give you a full report on the cycle that's most efficient for you and saves you the most money.

Call your nearby DIAMOND Sales Office. Or mail this coupon *today*. DIAMOND ALKALI Co., 300 Union Commerce Bldg., Cleveland 14, O.

Diamond Chemicals

Which degreasing cycle saves you most money? Ask your DIAMOND SOLVENT SPECIALIST.

1. Hot vapor only.
2. Hot vapor, cool spray, hot vapor.
3. Warm solvent dip, hot vapor.
4. Boiling solvent dip, warm solvent dip, hot vapor.
5. Boiling solvent dip, cool spray, hot vapor.
6. Ultrasonic agitation of the solvent in combination with other methods.

Sales offices: Chicago • Cincinnati Cleveland • Houston • Memphis • New York • Philadelphia • Pittsburgh • St. Louis

Please have a DIAMOND REPRESENTATIVE call on me to show how DIAMOND's Specialized Service can save me money and give me better cleaning results with Vapor Degreasing.

Name_____

Firm_____

Address_____

City _____ Zone____ State_____

For more data circle 340 on Postpaid Card

Style "E" Dynaprecipitor water wash spray booth

SAVES MONEY 10 WAYS

1 **Stack and fan stay cleaner, longer**
Virtually no pigment gets to this area.

2 **Exhaust air washed 4 times**
Pigment is scrubbed out and trapped in collecting pan.

3 **Unbroken water curtain**
No nozzles to clog. Manifold disperses water evenly.

4 **Booth stays cleaner**
Every paint collecting surface is water-scrubbed.

5 **Easy maintenance**
Hinged front water curtain permits easy skimming of pigment from collecting pan.

6 **Clog-free water circulating system**
No dead-ends to accumulate sediment—is self-flushing.

7 **Saves on floor space**
Short depth wash unit gives water wash spray booth benefits in regular booth space.

8 **Inexpensive to own**
These booths are mass produced using standardized assemblies—available in 70 sizes and styles.

9 **Economical to operate**
Maintenance costs are low. Interruptions to painting production for cleaning are few and short.

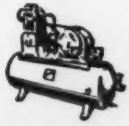
10 **Insurance savings**
Earns lower insurance rate than conventional dry-type booth. Properly installed, exceeds requirements of fire, health and state authorities.

All the facts in this descriptive bulletin. Ask your Binks jobber or industrial distributor for Bulletin DUE, or write direct.

Ask about our spray painting school
Open to all...NO TUITION...covers all phases.

Binks
EVERYTHING FOR SPRAY PAINTING

SPRAY GUNS



AIR COMPRESSORS

NATIONWIDE SERVICE

Binks Manufacturing Company
3118-40 Carroll Avenue, Chicago 12, Illinois

REPRESENTATIVES IN PRINCIPAL U.S. & CANADIAN CITIES • SEE YOUR CLASSIFIED DIRECTORY
For more data circle 341 on Postpaid Card

Page 82

New Equipment, Materials, Processes

Polishing, Buffing, Degreasing, Cleaning, Barrel Finishing, Plating, Anodizing, Phosphatizing, Baking, Vacuum Metallizing, Chromate Coating, Paint Finishing, Waste Treatment

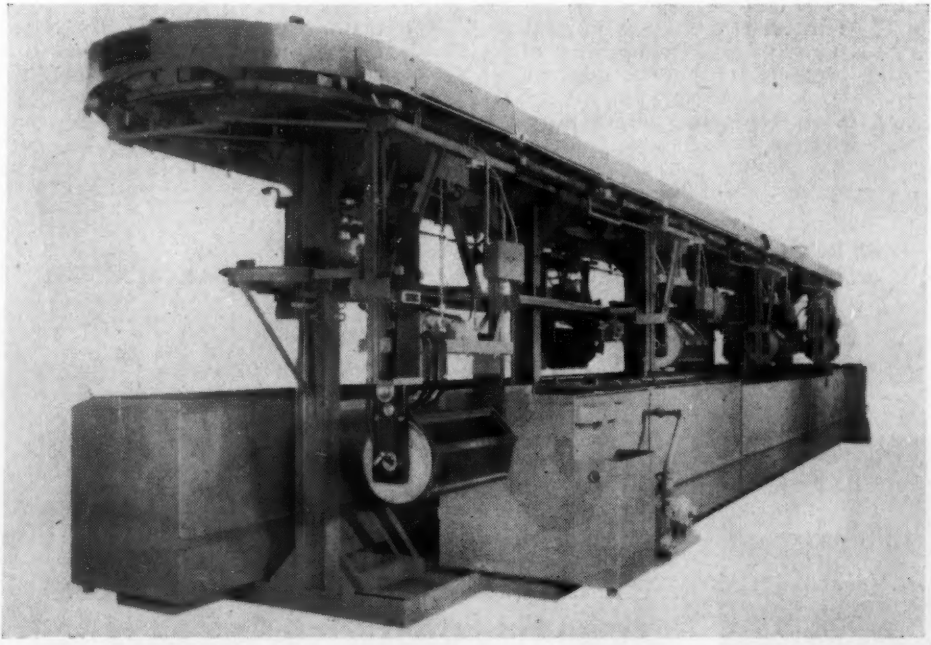
Automatic Plating and Processing Machine

The Crown M-P (Multi-Purpose) Automatic is built to carry racks and barrels of parts from tank to tank of liquid used for plating, painting, anodizing, phosphatizing and other processes.

Each carrier on this machine can be set at the loading station to skip certain tanks, delay at certain points, spend less time in certain tanks, and so on.

The Crown M-P Conveyor can be installed in a straight line or oval shape, so that loading and unloading can be at the same point or at different locations in the plant.

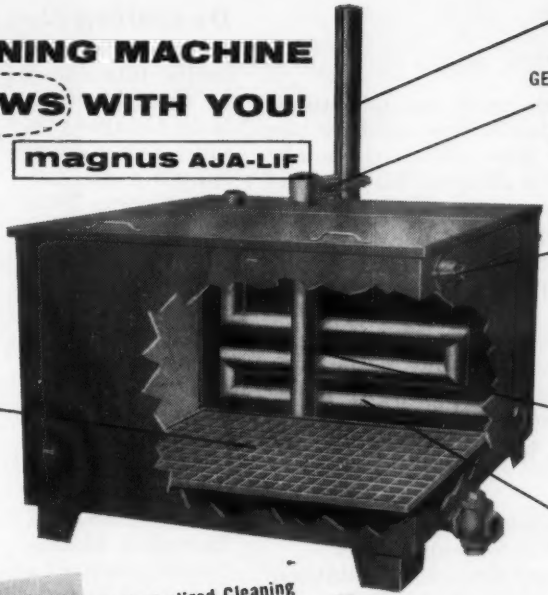
Features: Each carrier can be set for one of several courses by auto-



Crown M-P Automatic Processing Machine; for plating, painting, anodizing, phosphatizing

THE CLEANING MACHINE THAT GROWS WITH YOU!

magnus AJA-LIF



AIR OPERATED.

MOTORLESS AND GEARLESS AUTOMATIC AGITATING AND LIFTING DEVICE. ONLY 4 MOVING PARTS.

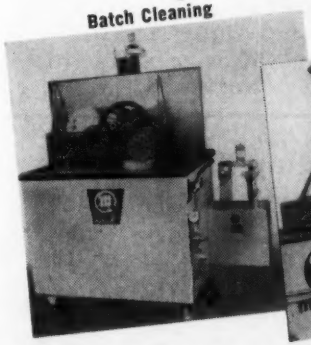
SINGLE LEVER CONTROL FOR LOWERING, AGITATING AND RAISING THE WORK.

VARIABLE SPEED AGITATION FROM 0–160 MOTIONS PER MINUTE. ACTUALLY SHEERS THE DIRT OFF.

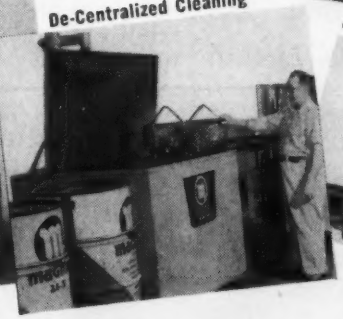
HEATING UNITS FOR STEAM, GAS OR ELECTRICITY.

STANDARD GRATE (OR ROLLER) PLATFORM HANDLES UP TO 450 LBS. OTHER UNITS UP TO 2000 LBS.

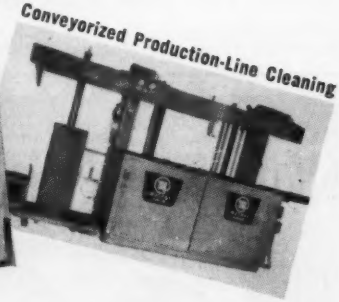
Batch Cleaning



De-Centralized Cleaning



Conveyorized Production-Line Cleaning



FLEXIBLY ENGINEERED to offer you the time, labor and material savings of mechanically agitated cleaning **today** and **tomorrow,** the Magnus Aja-Lif adapts to current needs — never becomes obsolete.

- COMPLETE BATCHES CLEANED MORE THOROUGHLY THAN EVER IN MINUTES.
- VERSATILITY IDEAL FOR DE-CENTRALIZED CLEANING. USE WHEREVER YOU WANT ON-THE-SPOT AUTOMATIC CLEANING EFFICIENCY.
- SIMPLE CONVEYOR CONNECTS STANDARD UNITS FOR MULTIPLE STAGE OPERATIONS. WASH, RINSE, RUSTPROOF, ETC., AUTOMATICALLY, SKIPPING STAGES WHENEVER DESIRED.

YOU OWE IT TO YOUR FUTURE to find out about the benefits which the Aja-Lif offers TODAY!

MAGNUS CHEMICAL COMPANY
208 South Avenue
Garwood, New Jersey

PLEASE SEND FULL INFORMATION ON YOUR MAGNUS AJA-LIF CLEANING MACHINES.

NAME _____

COMPANY _____

POSITION _____

ADDRESS _____

CITY _____ STATE _____

magnus
CHEMICAL COMPANY INC

EQUIPMENT • CHEMICALS • METHODS

A WORLD-WIDE ORGANIZATION SPECIALIZING IN THE CLEANING AND PROTECTION OF ALL SURFACES

For more data circle 342 on Postpaid Card

matic programming or manual settings on a control board; one machine can plate two or three different metals; horizontal and oblique barrels and plating racks can be carried by the same machine; voltage for barrel plating can be different from that for rack-type plating; it is possible to arrange cycles so that as many as four different thicknesses of deposit are being produced at the same time on the same machine; parts can vary from ¼ inch to 40 feet in length; each station will support loads up to 3,000 pounds; machine will rotate or tilt barrels during transfer.

Details are given in Bulletin M-P, available from the manufacturer.

Manufacturer: Crown Rheostat and Supply Co., 1965 Pratt Blvd., Elk Grove, Ill.

For more data circle 1 on Reader Service Card

Descaling Nozzle

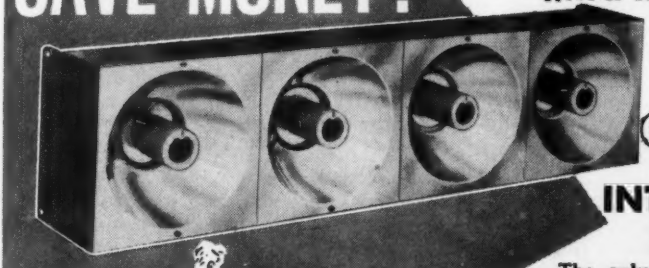
A nozzle recently introduced by Spraying Systems Company is built for use in spraying descaling solutions. It is equipped with a tungsten carbide orifice insert to improve resistance to wear caused by impurities in the water passing through the orifice at high pressures.

Descaling Nozzle

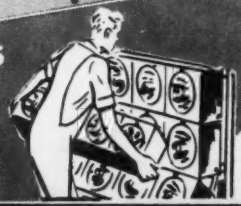
Identified as the ¾ USSTC-E Descaling Nozzle, the unit delivers a flat, hard-hitting spray. The orifice is relatively large, allowing most particles to pass through without clogging.

SAVE MONEY!

By Building Your Own Controlled Temperature Infra-Red Ovens with driQuik INTERLOCKING SECTIONS



OVENS ANY SIZE OR SHAPE



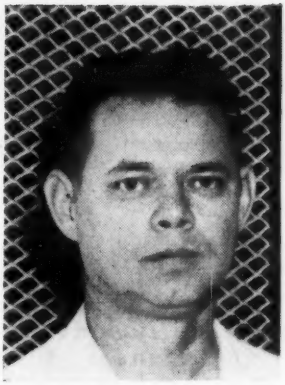
The only lava coated ceramic type generators ever developed, they give more even, more intense far infra-red energy with less power consumption. Dark burning—no injury to eyes. Impervious to vibration, shock, vapor and moisture.

NO SOCKETS TO BURN OUT—therefore a minimum of maintenance expense in any application. Write TODAY for literature.

driQuik DIVISION

DRY CLIME LAMP CORP.
GREENSBURG, INDIANA

For more data circle 343 on Postpaid Card



"NO MORE REJECTS FROM PAINT CHIPPING SINCE WE STARTED USING **DuBOIS DURA-KOTE**"

—WILLIAM P. SMITH
GENERAL FOREMAN
SHAMPAINE COMPANY
ST. LOUIS, MO.

After testing or using 12 different phosphatizers, the Shampaine Co., manufacturers of nationally distributed physicians' and hospital equipment, has agreed, DuBois' Dura-Kote gives almost perfect results.

Dura-Kote has withstood all exacting requirements for superior salt spray, humidity and coating weight tests.

It's easily controlled, is non-sludging and cleans better. Works for a long period in the tanks. On the job it gives the maximum in paint adherence.

DuBois can help solve your phosphatizing problems. Write today, Dept. AG, The DuBois Co., Inc., Cincinnati 3, Ohio for free Handy Daily Control booklet used in phosphatizing operations.

DuBois Chemicals

THE DuBOIS CO., INC. • GENERAL OFFICES • CINCINNATI, OHIO • U.S.A.
PLANTS AT CINCINNATI • LOS ANGELES • DALLAS • E. RUTHERFORD, N.J.

Representatives and Warehouses Throughout the United States, In Canada, and Parts of Latin America
For more data circle 344 on Postpaid Card

Data sheet 7870, available from the manufacturer, gives complete details.

Manufacturer: Spraying Systems Co., 3229 Randolph St., Bellwood, Ill.

For more data circle **2** on Reader Service Card

★ ★ ★

Catalytic Coating

Tenax Finishing Products Co. has introduced a finish called Cladlytic, a coating based on catalytic agents. This product is said to have exceptional adhesion and corrosion resistance properties. It air dries, requires no baking.

Manufacturer: Tenax Finishing Products Co., 390 Adams St., Newark 5, New Jersey.

For more data circle **3** on Reader Service Card

★ ★ ★

High-Vacuum Pump

Rochester Division of Consolidated Electrodynamics Corporation has introduced an oil-diffusion high-vacuum pump that is said to provide higher peak speeds and faster throughput. Four and six-inch sizes are now available.

The four-inch model pumps at a maximum speed of 720 liters per second over the low - pressure range (from 2 x 10^{-5} to 2 x 10^{-3} mm Hg, with a limiting forepressure of 0.5 to 0.6 mm Hg.

High speed and throughput of these pumps result from innovations in design, the manufacturer reports. For example, an immersion heater speeds vaporization by direct, internal heating of pumping fluid, while an extension of the heater assembly provides an additional boost in the vapor phase.

H. W. Kramer
YOUR KEY TO BETTER FINISHING...
BUFFING LATHE
1 to 7½ H.P. Ball Bearing V-Belt Drive. Pre-determined speed set at factory or to your specifications. Buffing wheels and compounds available for every industry . . . Special compounds recommended for Special applications.
SINGLE BARREL TUMBLER
Size: 30" x 36" or engineered to your specifications. Barrels lined with kiln-dried and glued maple. Child's play to operate. Economical on space as motors are individually mounted overhead—double decked or single. Tumbling supplies available also.
H. W. KRAMER CO.
120-30 JAMAICA AVENUE
RICHMOND HILL 18, N. Y.
Write Dept. GF for Detailed Information

For more data circle 345 on Postpaid Card

A thrifty boss is "Miser" Walt—
Hoards anode metal in a vault.
***DARCO®** would have saved him more,*
But Walt just doesn't know the score.

Keep your plating bath clean with Red Label activated carbon . . . and you'll have fewer rejects and get more mileage out of anode metal. Order DARCO from your distributor.

DARCO IS MADE BY

CHEMICALS DIVISION
ATLAS POWDER COMPANY
WILMINGTON 99, DELAWARE
***In Canada:* Atlas Powder Company, Canada, Ltd.**
Brantford, Ontario, Canada

For more data circle 346 on Postpaid Card

The unit's jet is designed to improve vapor flow and expansion, thereby increasing diffusion speed.

The casing is shorter and slightly wider, also improving speed and throughput.

Details are given in Bulletin 6-20, available from the manufacturer.

Manufacturer: Consolidated Electrodynamics Corporation, Rochester Div., Rochester 3, N. Y.

For more data circle **4** on Reader Service Card

Vinyl-Metal Adhesive

An adhesive (A-978-B) for bonding vinyl plastic to steel has been introduced by B. F. Goodrich Industrial Products Company, a division of The B. F. Goodrich Company.

Sheet steel bonded to vinyl with the A-978-B cement can be stretched 35 per cent without weakening the bond or damaging the vinyl coating, the manufacturer reports.

Goodrich's tests for evaluating this product — including boiling in water for 30 minutes, exposure to 200 deg. F. for seven days and humid storage at 160 deg. F. for 1,000 hours— prove that the A-978-B bond remains as strong after stretching as before.

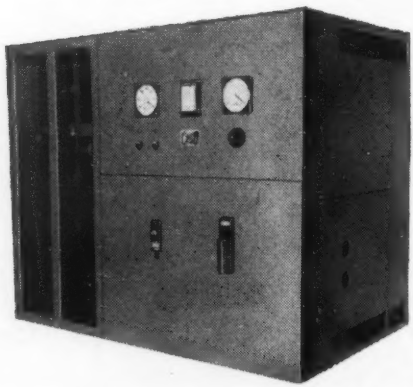
A-978-B permits sheet steel to be vinyl-coated, embossed and then deep-drawn (forming deep cup shades by stretching flat steel sheet) without ruining the adhesion. Once drawn, the steel is completely finished.

Chief markets for vinyl-coated steel include the automotive industry — for door panels, dashboards, kick plates and trim; the construction industry—for wall panels; the appliance industry

SYNTRON

SELENIUM or SILICON

RECTIFIER POWER UNITS



provide efficient, dependable, low cost d-c power supplies for better, more profitable metal finishing

SYNTRON Selenium or Silicon Rectifier Power Units meet metal plating and finishing d-c power requirements—1 KW up, at any d-c voltage output. The high efficiency, excellent power factor, over load capacity, long life and low maintenance make SYNTRON Rectifier Units ideal a-c to d-c power conversion units for the metal plating and finishing industry. They provide efficient, dependable d-c power supplies for electro plating, cleaning, polishing and electro chemical processing.

SYNTRON Selenium or Silicon Rectifier Power Units are efficient and dependable—easy to install— easy to maintain.

SYNTRON Engineers welcome all special applications in all sizes of rectification.

Write for free literature

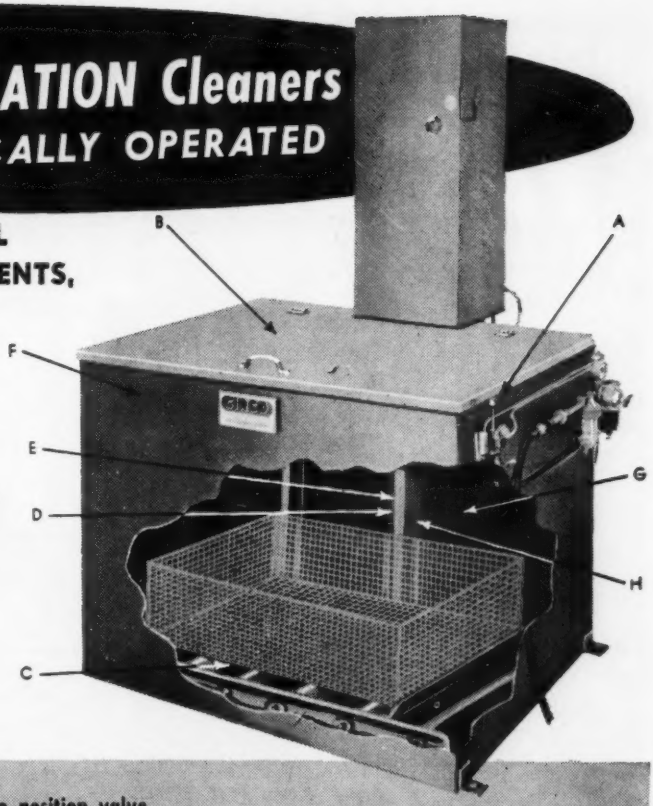
SYNTRON COMPANY

452 Lexington Avenue Homer City, Penna.

For more data circle 347 on Postpaid Card

Power AGITATION Cleaners
PNEUMATICALLY OPERATED

FOR USE WITH ALL CLEANERS — SOLVENTS, EMULSIONS, PHOSPHATIZING AND ACID SOLUTIONS FOR HEAT TREATING, QUENCHING, WAX AND PROTECTIVE COATING AND OTHER LIQUID PROCESSING.



A. Only one control—three position valve. 1. raises rack. 2. lowers rack for soak. 3. agitates rack.

B. Hinged steel cover. Fusible link causing lid to drop in event of fire, optional.

C. Supplied with grate platform. Roller rack platform available.

D. Length of up and down stroke variable from 4" to 27"

E. Number of strokes variable from 32 to 70 per minute.

F. Tank shell is fabricated of solid heavy gauge hot rolled steel.

G. Available with immersion heating choice of steam - gas or electric.

H. The same air operated piston lowers, raises and agitates the rack.

Since 1923 CIRCO **EQUIPMENT COMPANY**

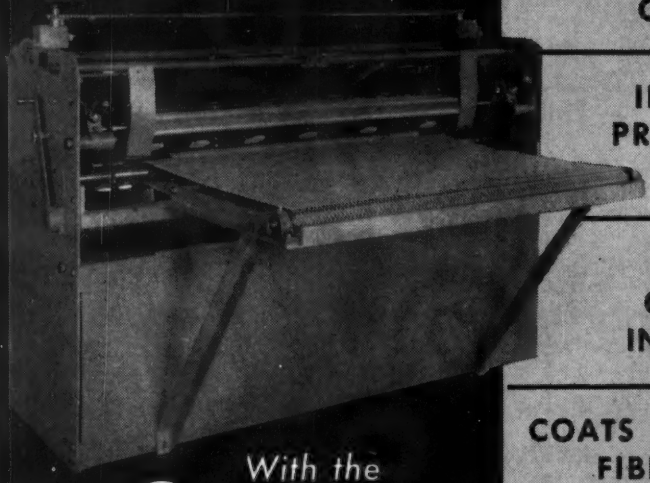
Write for New 4-page Brochure with Complete Information on All Models.

51 TERMINAL AVE., CLARK, NEW JERSEY

Offices and Representatives in Principal Cities

For more data circle 348 on Postpaid Card

PRODUCE MORE! FASTER!



With the

GASWAY ROLLACOAT

UP TO 50% LESS PAINT COST

APPLIES MANY TYPES OF COATINGS

INCREASES PRODUCTION RATES

LOW ORIGINAL INVESTMENT

COATS WOOD, METAL FIBREBOARDS CARDBOARDS, PLASTIC

BETTER QUALITY FINISHES

HIGHER LABOR EFFICIENCY

SEND THIS COUPON TODAY OR WRITE FOR FULL DETAILS

GASWAY CORPORATION
6463 No. Ravenswood Avenue, Chicago 26, Illinois
Please send me complete information on Gasway Equipment for rollercoating

Name_____ Title_____
Company_____
Address_____
City_____ State_____

GASWAY CORPORATION
6463 No. Ravenswood Ave.
Chicago 26, Illinois

For more data circle 349 on Postpaid Card

—for cabinets for radio and TV, refrigerators, washers and dryers.

Vinyl can have a decorative, embossed finish, is abrasion-resistant and will not chip.

Manufacturer: B. F. Goodrich Industrial Products Co., a division of B. F. Goodrich Co., Akron, Ohio.

For more data circle **5** on Reader Service Card

★ ★ ★

Stainless Steel Filter Pump

An all-stainless-steel portable canned filter pump announced by Sethco Manufacturing Corporation is designed for filtering ultrasonic cleaning solutions, solvents and precious metal plating solutions.

This unit is constructed with a magnetically driven pump inside the motor housing, has no stuffing boxes or rotary seals.

Stainless Steel Filter Pump

The Sethco filter has an all-stainless-steel filter chamber, which contains one or more filter tubes of cotton or Dynel yarn. These tubes are said to be capable of removing particles as small as one micron in size. Precious metals can be reclaimed from the tubes by igniting.

Three models are available with these features. Capacities: 50 to 300 g.p.h. Pump itself will deliver 1,300 gallons per hour on open pumping.

PAINT STRIPPING CLINIC!

Send Us Your Tough Stripping Problems for Fast Action!

10 YEARS OF BECK PAINT STRIPPING CLINICAL SERVICE Saves Thousands of $$$ for Customers—Who Now Use World-Famous...

EPOXYSTRIP

Better find out for yourself . . . about Epoxystrip, Econostrip and other Beck Paint Remover lines and formulations. Use the BECK CLINIC SERVICE — send us several parts, sections, or test panels (properly tagged) of the work to be stripped.

Write or 'phone giving us essential information—your problem details, requirements, tanks available, hot or cold, etc. This service, and our prompt report, are free, with no obligation.

Beck Strippers outstrip all others — removing organic finishes, epoxies, etc., as easily as baked enamels, lacquers, etc. No stripping scum — clean rinsing!

SEND FOR FREE BROCHURE

BECK EQUIPMENT COMPANY
3350 WEST 137th STREET — CLEVELAND 11, OHIO

For more data circle 350 on Postpaid Card

Duracoat

chromate conversion coatings for zinc, cadmium, copper, brass, bronze and aluminum. Now available in dyed colors as well as clear, irridescent, golden or olive-drab. Supplied in liquids or powders.

Write for literature, send samples for treatment or give us your problems — our laboratory staff is available to help solve them.

A new folder describing the full line of black oxide finishes, chromate finishes, cleaners, oils, and strippers is yours for the asking.

HEATBATH
CORPORATION
SPRINGFIELD 1, MASS.
or 701 North Sangamon Street, Chicago 22, Illinois

36 Years of Service to the
Heat Treating and Metal Finishing Industry

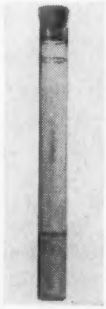
For more data circle 351 on Postpaid Card

Manufacturer: Sethco Manufacturing Corp., 2292 Babylon Turnpike, Merrick, N. Y.
For more data circle **6** on Reader Service Card

★ ★ ★

Viscosity-Test Tube

Gardner Laboratory has introduced glass tubes designed for determining viscosity by the proposed tentative A.S.T.M. Bubble-Time Method (Designation D1545-58T).



Bubble Tube

In the bubble-time method, viscosity is determined by timing the travel of a bubble through a tube of liquid. At a given viscosity and temperature the time it takes for a bubble to move through a tube of standard length will be constant.

Manufacturer: Gardner Laboratory, Inc., Bethesda 14, Md.
For more data circle **7** on Reader Service Card

★ ★ ★

Polishing Machine

Clair No. 303 surface finishing machine is designed so that the roll has improved ability to follow contours and depressions and thereby produce a uniform finish on either flat or contoured surfaces.

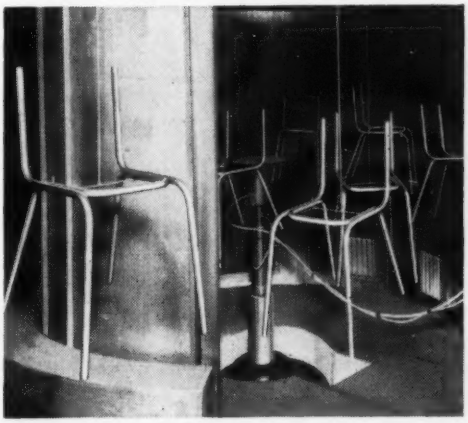
This improvement results from increasing the sensitivity of the floating action of the roll so that the roll is free to follow contours at any predetermined contact pressure, the work serving as its own cam. This increased sensitivity is accomplished by removing the spindle motor and all other overhung weight from the pivot shaft, and by incorporating a two-step, swiveling, timing-belt drive between the motor and the spindle.

The hydraulically operated table that supports the work during polish-

RANSBURG *Electro-Spray...*

PROVIDES 50% PAINT SAVING

(over the former dip method) in the finishing of



KAY-MAR DINETTE FURNITURE

◀ A high quality, long-lasting finish is applied to tubular chair frames as they make a loop around the Ransburg No. 2 Process reciprocating disk in the finishing department at Kay-Mar Industries.

● Kay-Mar Industries, Cassopolis, Michigan, switched from the dip method to Ransburg Electrostatic Spray Painting because they wanted to improve the quality of the finish on their metal furniture line.

Now, with electrostatic spray painting, they get a heavier, more uniform application, which was not possible with former dip. With electrostatic, they are able to use metallic coatings with higher metal content. In their magazine advertising to the mobile home industry, they proudly say: "Finest finish in the industry at no additional cost to you!"

Electrostatic provides other advantages at Kay-Mar. They picked up some additional—and much needed—floor space when dip tanks were removed. Their insurance rates were reduced because of improved "housekeeping" conditions. Frequent color changes are made quickly and simply, and rejects—which used to run 1½%—are reduced to less than a quarter of one per cent.

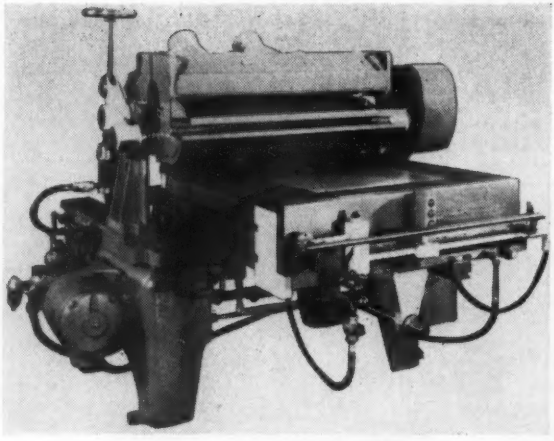
No reason why you can't do it, too!

Let us test prove the advantages of automatic electrostatic spray painting on your products in our complete laboratories. No obligation. Call or write for our No. 2 Process brochure, which shows a variety of automatic painting installations on a wide variety of products. Or, if your production doesn't justify automatic painting, let us tell you about the new Ransburg No. 2 Process electrostatic hand gun, now widely used by both large and small manufacturers.

Call or write **RANSBURG Electro-Coating Corp.**

Box-23122, Indianapolis 23, Indiana

For more data circle 352 on Postpaid Card



Clair No. 303 Surface Finishing Machine

ing travels in and out and from side to side, can be adjusted for amount of travel.

Model No. 303 is available with a wide range of accessories and special options.

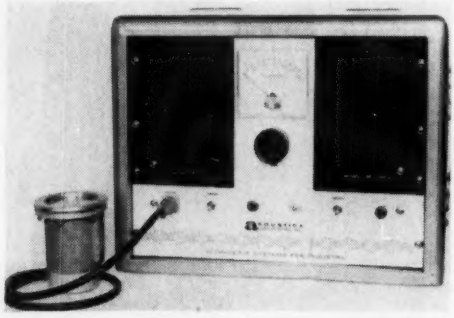
Manufacturer: Clair Manufacturing Co., Inc., Olean, N. Y.

For more data circle **8** on Reader Service Card

★ ★ ★

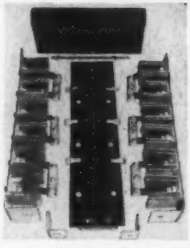
Ultrasonic Cleaner

An ultrasonic cleaner introduced by Acoustica Associates has 500 watts



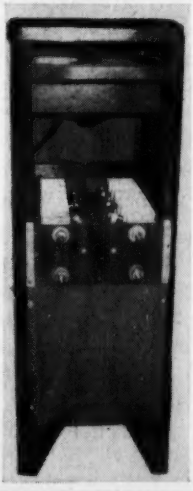
Acoustica Mod. DR-500-AL Ultrasonic Cleaner

NEW! SILICON RECTIFIER KIT



Here's a low-cost conversion unit with hermetically-sealed, non-aging cells that:

- increases efficiency
- eliminates replacement and maintenance problems
- cuts current consumption
- is easy to install



This modern "package" unit will pay for itself in a short time. Initial cost is lower than the conventional replacement rectifiers you have been using.

DRESSER Silicon Rectifier Kits are available from stock for the majority of popular transformer models and can be installed quickly and easily.

***Write today for complete information and prices.* Start saving tomorrow!**

DRESSER Silicon Rectifier Kit installed . . . in standard model rectoplater. →

Dresser Electric Co. 2705 WIGHT STREET DETROIT 7, MICHIGAN

For more data circle 353 on Postpaid Card

PRODUCT PROTECTION BY THE GALLON

WITH AMCHEM GRANODINE!

One of the most widely used metal finishing chemicals, Amchem Granodine is the most effective pre-paint treatment yet developed for the protection of fabricated steel products.

The non-metallic phosphate coating produced by Amchem Granodine provides an effective base for durable paint finishing and greatly improves the corrosion resistance of the finished product. A variety of Granodizing processes are available for a wide range of finishing operations . . . to assure your products of greater usability through lasting protection.

It may be well worth your while to investigate cost saving, efficient Amchem Granodine—today's most modern metal finishing chemical for steel. Check Amchem where service goes beyond the product with a complete program of technical and engineering assistance!

Write for Bulletin 1380 with Selection Chart to help you choose the Granodine type for your specific needs—and bulletins featuring other Amchem chemicals of vital interest to the fabricator of steel products.

AMCHEM GRANODINE

Amchem Granodine is another chemical development of **Amchem Products, Inc.,** Ambler 29, Pa. Formerly American Chemical Paint Company. Detroit, Mich. • St. Joseph, Mo. • Niles, Calif. • Windsor, Ont./Amchem and Granodine are registered trademarks of Amchem Products, Inc.

For more data circle 354 on Postpaid Card

power and increased transducer efficiency, is designated Model DR-500-AL. It replaces Model DR-400-AL. Cleaning effectiveness of the new model is said to be double that of the old model.

The more powerful unit also has a brazed transducer diaphragm that will withstand extremely high temperatures, thus can be used to clean parts at higher temperatures. Tank sizes: ½ gallon to 2 gallons.

Manufacturer: Acoustica Associates, Inc., 26 Windsor Ave., Mineola, N. Y.
For more data circle 9 on Reader Service Card

★ ★ ★

Chemical-Resistant Floor Surfacing Material

A tough material for finishing new concrete floors and resurfacing old ones has been introduced by The Dow Chemical Company.

Based on a Dow epoxy resin, the formulation is a mortar which has excellent resistance to corrosive chemicals and abrasion.

In this mortar, epoxy resin and hardener take the place of cement and water found in conventional mixtures.

Though thicknesses vary, the average epoxy mortar repair layer will be less than one-half inch.

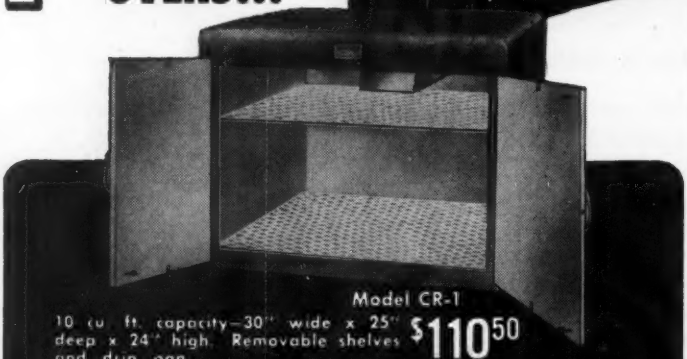
The refinished floor can take light traffic after 24 hours, regular use after 48.

According to Dow, the epoxy mortar will be useful where "nothing else has worked."

Examples cited include chemical and industrial plants where acids and alkalies and heavy equip-

PORTABLE GRIEVE-HENDRY ELECTRIC OVENS...

Standard Models For Every Special Need!



Model CR-1
10 cu. ft. capacity—30" wide x 25" deep x 24" high. Removable shelves and drip pan. $110.50
f.o.b. Chicago

Portable. Costs less than 5c per hour to operate. Adjustable temperature control to 225° F. Fan driven forced air circulation. Uniform temperature throughout. Plugs into any 110V wall outlet—no special wiring required.

Quick Quotations —Prompt Delivery — Reasonable Prices—on Ovens made to your specifications.

Can be used in a group or bank. Use them on the production line —save handling—hauling.

Other standard models with temperature ranges to 1000°F. available. Write for literature.

GRIEVE-HENDRY CO., INC.

1414 W. Carroll Ave., Chicago 7, Ill.
For more data circle 355 on Postpaid Card

The start of a successful barrel finishing process

Techline* takes the guess work out of media and compound selection

Selecting the one abrasive medium and compound that is just right for your process—on your parts—is basic to a profitable precision finishing operation. With Techline, this vital selection is a science, and your results are assured.

Techline media, compounds and abrasives, properly applied to your precision finishing operations, will produce precisely the finish you require, at minimum finishing cost. Techline offers a complete line of supplies for barrel finishing and wet blasting, selected, processed, graded and packaged to new standards of quality and convenience.

For additional savings, you can combine purchases of all your media and compound needs, to gain attractive quantity discounts and freight allowances.

Write for full descriptions and prices of Techline supplies, in Bulletin 89

Techline*

*TRADE MARK

division of **WHEELABRATOR**

Where precision finishing is a science

2454 Avenue V, Vicksburg, Michigan

For more data circle 356 on Postpaid Card

ment make floor repair a predictable maintenance expenditure.

Manufacturer: Dow Chemical Co., Midland, Mich.

For more data circle **10** on Reader Service Card

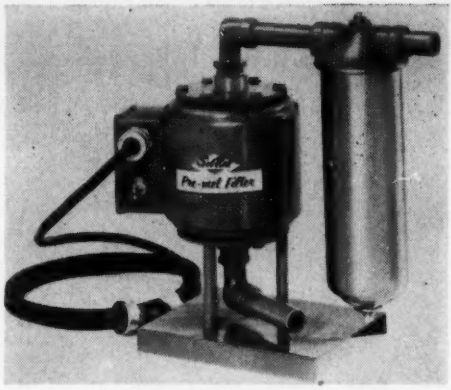
★ ★ ★

Solution Filter

A portable solution filter recently announced by Sel-Rex Corporation has a rotating magnetic field to drive the pump impeller, eliminating the need for seals or stuffing glands. This feature reportedly makes the filter leakproof, eliminating solution loss in the filtration of precious metals electrolytes.

The Pre-Met Portable Solution Filter utilizes a canned turbine pump which is continuously lubricated by the solution being processed.

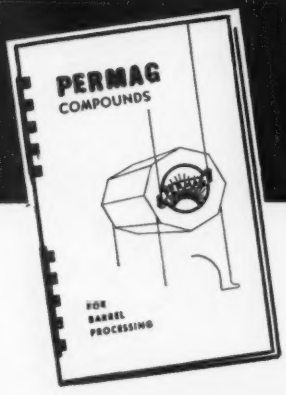
The same stainless steel filter tube



Sel-Rex Pre-Met Portable Solution Filter

used on previous models contains a cartridge of specially processed cotton or dynel yarn wound around a stainless steel supporting core. Cartridges are available to filter particles from 150 down to one micron.

The components on the new models are said to be arranged in such a man-



Do you have YOUR copy of PERMAG'S LATEST MANUAL OF BARREL PROCESSING OPERATIONS?

Contains latest procedures on Coloring—Deburring—Cleaning—Roughing—Plus many plant case histories that can help you.

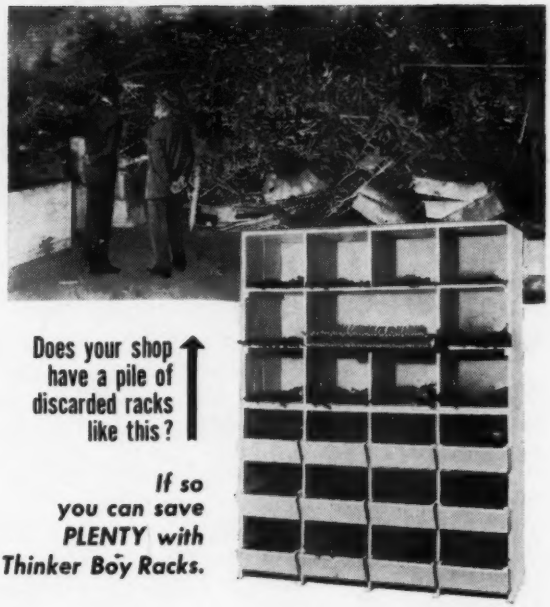
Send for YOUR FREE COPY today of "PERMAG COMPOUNDS FOR BARREL PROCESSING"

PERMAG

MAGNUSON PRODUCTS CORP.
Executive Offices:
50 COURT ST., BROOKLYN 1, N. Y.
In Canada: Canadian PERMAG Products, Ltd., Montreal

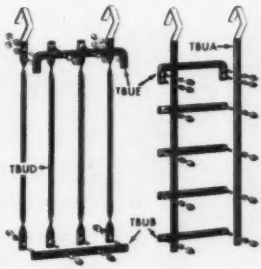
For more data circle 357 on Postpaid Card

How to Convert Waste into PROFIT with Thinker Boy Plating Racks



Does your shop have a pile of discarded racks like this?

If so you can save PLENTY with Thinker Boy Racks.

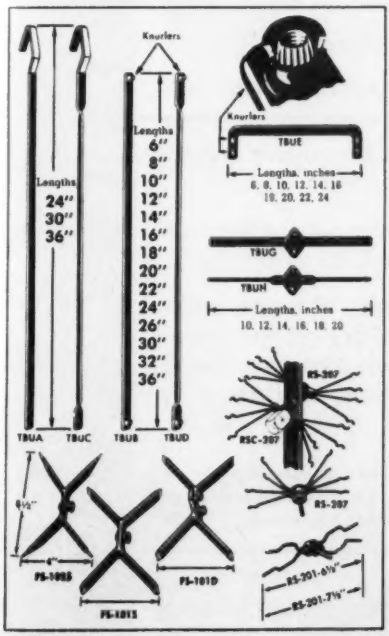


Thinker Boy Plating Racks are made of mass-produced insulated parts that assemble with a leakproof seal.

When no longer needed you can disassemble the racks and reuse the parts or store the parts for future use in surprisingly small space.

With a supply of Thinker Boy Parts you can assemble fully insulated racks of your own design in minutes.

When you use Thinker Boy Racks you can quickly replace damaged tips with leakproof insulation seal–keep racks in service at full capacity–no dipping or waiting.



These great economies are possible because Thinker Boy Racks are made of standard, precoated parts assembled with screws. Disassembly or conversion to other styles is fast, easy and extremely practical.

A new illustrated bulletin, just off the press, shows how to make racks designed with Thinker Boy Sections. Send for your copy today — it's the key to revolutionary reduction in plating rack costs.

Ask your BELKE Service Engineer or send for illustrated bulletin.

Belke Manufacturing Company
947 N. Cicero Ave., Chicago 51
EVERYTHING FOR PLATING PLANTS

For more data circle 358 on Postpaid Card

ner as to permit simpler, quicker priming of the pump, and to increase portability.

Manufacturer: Sel-Rex Corporation, Nutley, N. J.

For more data circle 11 on Reader Service Card

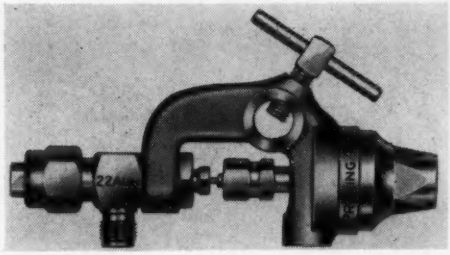
★ ★ ★

Automatic Airless Spray Gun

Spraying Systems' AutoJet spray gun is built for applying paints, lubricants and buffing compounds at pressures of 400 to 2,000 p.s.i.

The AutoJet is designed for use in the airless spray process, which atomizes coating materials by forcing them through an orifice at high pressures, using no compressed air for atomization.

Interchangeable orifice tips are available in sizes and materials of construction to meet almost any need. Valve needle and seat are made with tungsten carbide inserts.



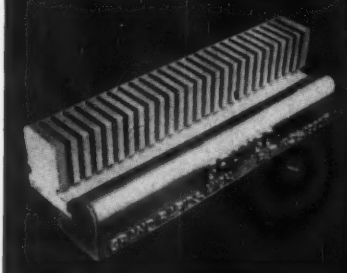
AutoJet Automatic Airless Spray Gun

The pneumatically operated control valve of the AutoJet operates at 70 to 100 pounds pressure and it provides instantaneous on-and-off response to meet any production cycling need.

Manufacturer: Spraying Systems Co., 3229 Randolph St., Bellwood, Ill.

For more data circle 12 on Reader Service Card

GRANCO



Granco Irradiant Grid Gas Burner

Your products will glow when cured and dried with Granco flameless gas burner systems.

GRANCO INC.

...Specializing in designing and building to entire customer satisfaction . . .

Granco builds radiant ovens, dryers and furnaces.

Granco builds industrial washers and water wash spray booths.

Granco has original ideas, initiative, ability to design and install any size or style system, whether it is convection, radiation or otherwise.

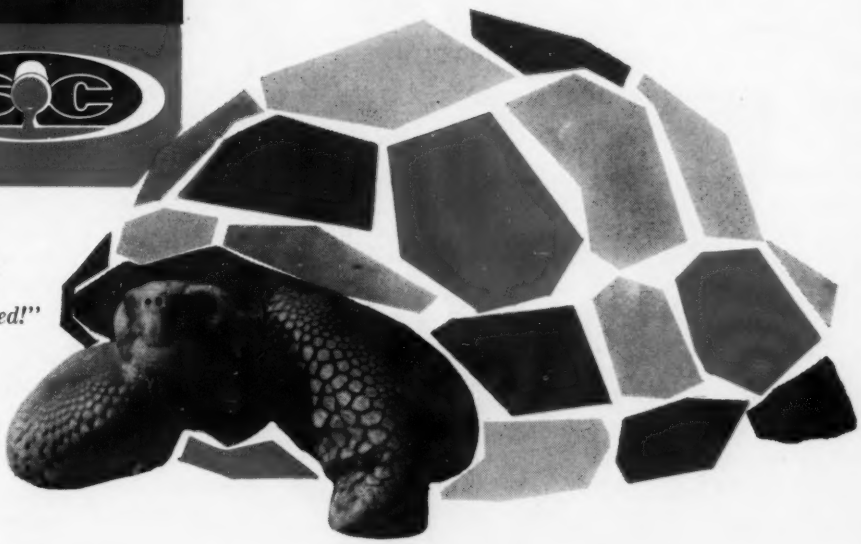
Write for folders illustrating our extensive range of engineering and building know-how.

317 32nd STREET S.W.
GRAND RAPIDS 8, MICHIGAN

For more data circle 359 on Postpaid Card

NEW!
exclusively from Specialty Coatings Company

A PURE BAKE EPOXY THAT BAKES AT 325° F IN 5 MINUTES!



"When a durable coating is required!"

designed for application to all clean metal surfaces*

- Three to four times better salt spray and humidity resistance than conventional bake coatings
- Color suitable for whites and white tints
- Hardness ..... Excellent
- Adhesion ..... Outstanding
- Impact ..... Excellent
- Formability ..... Excellent
- Resistant to all commercially available solvents
- Hot mar resistance ..... Excellent

*Can be hand sprayed, electrostatically sprayed or roller coated.

Viscosity and solvent evaporation rates are tailored to individual application.

specialty coatings company

3501 WEST JARVIS AVE.
SKOKIE, ILLINOIS
For more data circle 360 on Postpaid Card

SPECIALTY COATINGS COMPANY
3501 West Jarvis, Skokie, Illinois
RUSH FREE SAMPLE!
Here is the information you need . . .

(application)_____ (color)_____
(name) _____
(company name) _____
(street address) _____
(city _____ zone_____ state)_____

Metal-Cleaning Surfactant

A detergent recently introduced by Rohm & Haas Company combines vigorous detergent action with solubility in relatively high concentrations of alkaline cleaners, is trade-named Triton QS-15.

The product is anionic under alkaline conditions and cationic under acid conditions—an amphoteric material. It contains 100 per cent active ingredients.

Major application for the product is in cleaners used for soak-tank cleaning of metal products, the manufacturer reports.

Manufacturer: Rohm & Haas Company, Washington Square, Philadelphia 5, Pa.

For more data circle **13** on Reader Service Card

★ ★ ★

Paint-System Cleaning Assembly

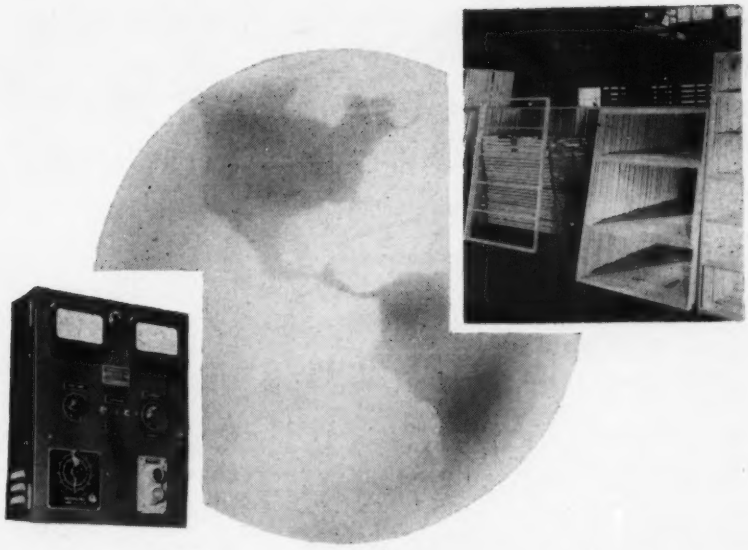
Equipment for flushing and cleaning out paint passages and hose lines in complex finishing equipment (automatic spray machines, paint heaters and multi-station systems) has been introduced by The DeVilbiss Company.

The units are available in two, five, ten and 15-gallon sizes and will clean hose and heater coils and flush spray guns in a single operation. A minimum amount of solvent is used and the operation is done quickly and effectively, the manufacturer states.

The cleaning equipment consists of a pressure-feed tank shell, lid assembly, safety valve, and cleaner and air mixer assembly.

The mixer assembly has two metering valves, one for air and one for the clean-

Better Buffing and Polishing?
ANSWER: ALWAYS USE
FORMAX
COMPOUNDS
FORMAX
FORMAX
Formax manufactures a complete line of Buffing and Polishing Compounds in bar, tube and liquid form suitable for all classes of metal, plastic and lacquer finishes. Formax compounds used together with the famous Formax ZIPPO long wearing buffing wheels make a combination that's hard to beat. Our extensive manufacturing, laboratory and testing facilities are always at your disposal.
Descriptive Catalogs Available on Request.
FORMAX MFG. CORP.
DETROIT 7, MICHIGAN
"THE FOUR McALEERS"
For more data circle 361 on Postpaid Card



"There's a world of difference in Anodizing when you have Automatic Current Density Control" . . .

. . . says John Gurniak of

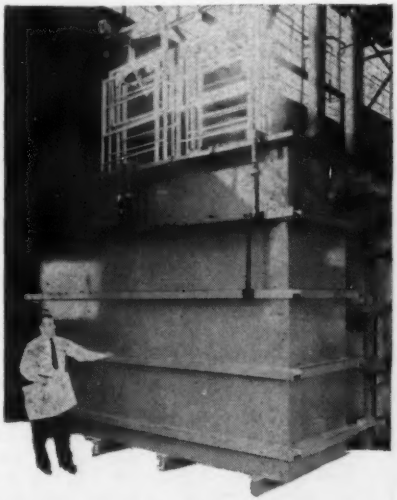
MICHAEL FLYNN MFG. CO., PA.

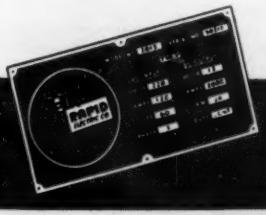
"and that big difference is the accuracy and simplicity in which a pre-determined film thickness can be controlled."

"We chose RAPID ELECTRIC'S Automatic Current Density Control rectifiers to eliminate the problem of estimating current densities with each load change. One setting, and the rectifier automatically maintains a constant current density per square foot of work."

"It's that easy"

"Once more, with the possibility of over-current virtually eliminated, MICHAEL FLYNN'S high standard of quality is assured."





THE NAMEPLATE THAT MEANS *"More Power to You!"*

RAPID ELECTRIC COMPANY

12838 Fenkell Avenue • Detroit 27, Mich. • Diamond 1-8537

2881 Middletown Road • New York 61, N. Y. • TAlmadge 8-2200

For more data circle 362 on Postpaid Card

ing solution. By adjusting these valves, all air, all cleaner, or a combination of both can be fed into the equipment to be cleaned.

Manufacturer: The DeVilbiss Co., Toledo 1, Ohio.

For more data circle 14 on Reader Service Card

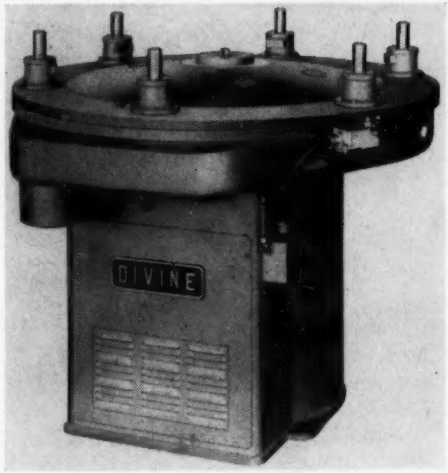
★ ★ ★

Rotary Polishing Conveyor

Model "RJ" Rotary Conveyor is an indexing type for use with polishing, buffing and brushing head units on automatic installations.

The mechanism consists of a gear reduction unit and variable-speed drive for the dial plate, which includes an intermittent motion for indexing the dial.

The work-holding dial is provided with six ball-bearing-mounted fixture spindles of 1½-inch diameter by 3 inches. The dial-index rate is adjustable from 120 to 1,800 indexes per hour with the fixture-spindle speed adjustable from 12 to 100 r.p.m. Other speeds are also available.



Rotary Conveyor for Automatic Polishing

Bond® TACK CLOTH

PACKED IN ROLLS OR IN BULK
JUST THE WAY YOU WANT IT!

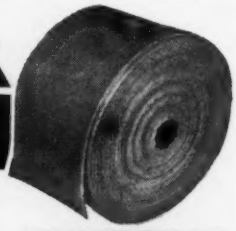
Stays Soft and Tacky — A SPECK-FREE FINISH EVERY TIME — Now available in white or gold — in Four Different Types of Cloth.

There's a big difference in TACK-CLOTHS—that's why BOND processes four different meshes of cloth with several types of formulations to give you the cloth that best "fits" your special needs. You can get BOND TACK CLOTH packed just the way that suits you best, too—in 150 yard Rolls of 36" wide cloth or in handy Cartons.

No matter which way you buy it, you can be sure that every square inch will stay SOFT and TACKY until the very last bit is used up.

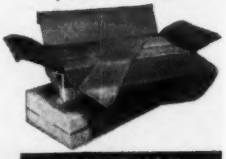
All BOND TACK CLOTH is Spontaneous Combustion Proof, Lint-Free and Wax-Free. Gives a sparkling speck-free finish every time. Clean and Sanitary. No waste. Choice of Standard, Extra Tacky or Less Tacky.

TRY THEM AND COMPARE RESULTS. Samples gladly sent upon request.
A WARRANTY OF SATISFACTION IN EVERY CARTON.



IN ROLLS

Cut off any size piece as needed.



IN BULK

Size is 18" x 36"—folded to 4½" x 18" or 9" x 18" for ease of handling. Cut and folded—ready to use. Also Individually Packed in Glassine Envelopes —144 to the carton—

Bond® CHEMICAL PRODUCTS CO. 2639 N. CLYBOURN AVE. CHICAGO 14 • ILLINOIS

"The Tacky Wiper Specialist"

For more data circle 363 on Postpaid Card

CLEAN WATER
CLEAN TANKS
mean clear profits with

Delpark
FILTERS

CFC Delpark Paint Spray Booth Filters eliminate downtime or costly overtime for tank cleaning; avoid plugged jets or nozzles; salvage valuable pigments.

Paint is filtered from booth water by floating matte of flocculated paint over a weir in booth reservoir into the filter. Water filters through, and paint sludge is retained on filter media, for automatic disposal.

Write for literature to Department PF.

COMMERCIAL FILTERS CORPORATION
MELROSE 76, MASSACHUSETTS
PLANTS IN MELROSE, MASSACHUSETTS AND LEBANON, INDIANA

For more data circle 364 on Postpaid Card

you can tell
CRES-LITE
BRONZE POWDERS
are Pure, Brilliant Metallic Bronze!

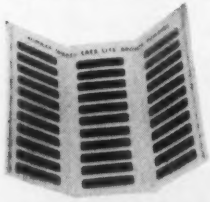
- by the brilliant sheen and full-bodied lustre!
- by the coverage—less cost per square inch of finished product!

Unequalled for smoother, more brilliant Plated-Effect Finishes—by spray, dip or flow coating.

IN STOCK—tremendous selection of colors including popular metallic pastels, statuary and antique shades.

COLORS MATCHED—with no variance in quality, color or lustre from batch to batch. Fast service guaranteed.

SPECIAL COLORS—Over 25 years experience in creating special colors and shades for the plastic and metal finishing trades. Satisfaction assured.



write for yours now!
NEW COLOR CARD FREE!
Full Range of Colors for Immediate Delivery

CRESCENT BRONZE POWDER CO.
118 W. ILLINOIS STREET, CHICAGO 10
1841 S. Flower St., Los Angeles 15

For more data circle 365 on Postpaid Card

An automatic release is furnished so that the two fixture spindles at the front of the machine are not rotating while being loaded or unloaded. Work-holding fixture and dial indexes are individually driven.

The fixture spindles are equally spaced on a 45-inch-diameter circle (center-lines). The dial diameter is 51 inches, and the fixture spindle tops are 42 inches from the floor.

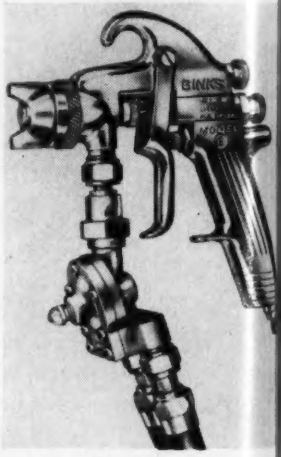
Manufacturer: Divine Brothers Co., Seward Ave., Utica, N. Y.

For more data circle 15 on Reader Service Card

★ ★ ★

Small Fluid Pressure Regulator

A small Binks fluid pressure regulator for guns used in circulating spray painting systems is designed to regulate pressure at a spray gun so that it is independent of circulating pressure.



Pressure Regulator

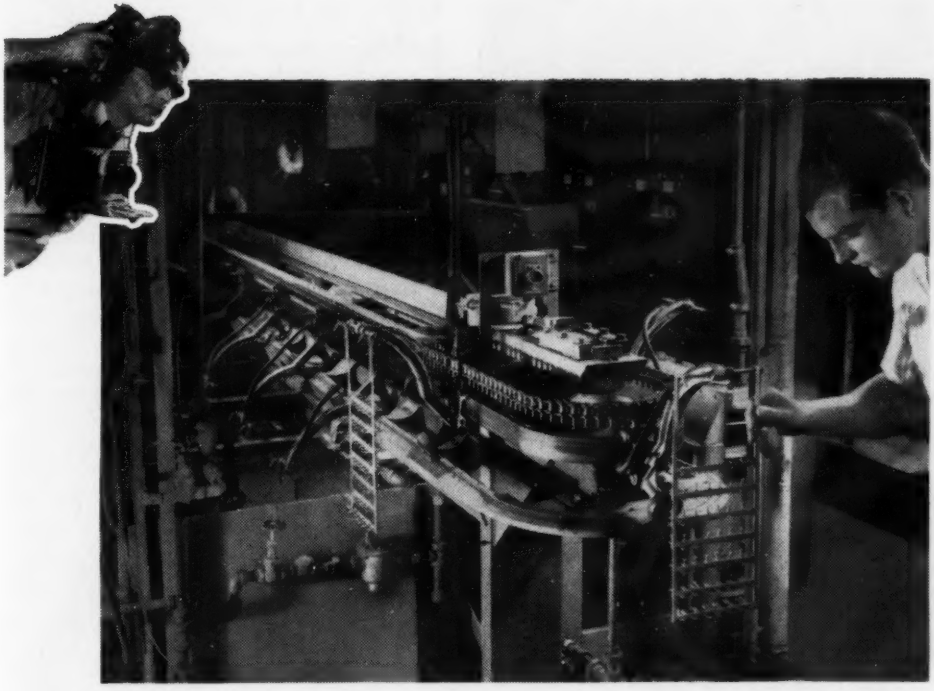
When attached to the spray gun, it provides fluid pressure control at each spray gun individually, regardless of how many guns may be operating from a common pressure tank or circulating system.

Several models are available, with a single or double inlet for circulating or direct-supply systems.

By manipulating a wrench while visually observing the gun's spray pattern, an operator can quickly and easily adjust to the desired pressure.

Manufacturer: Binks Manufacturing Company, 3118-40 W. Carroll Ave., Chicago, Ill.

For more data circle 16 on Reader Service Card



Graflex finds "LITTLE STEVE" improves quality . . . reduces costs

More companies like Graflex, Inc. are learning of the versatility of the "Little Steve" plating and processing machine. It's an amazing producer for a machine of its small size and low original cost. It can plate up to 40,000 pieces per day – 540 racks per hour.

Graflex manufactures the world-famous Speed Graphic and Super Graphic press cameras, 35mm and reflex amateur cameras and a complete line of photographic accessories. Here's what Mr. E. G. De Witt, Graflex Finishing Superintendent, has to say–"When we bought our 'Little Steve', we didn't know that we were buying such a versatile piece of equipment. It has been operating for six months and now we find that we got more than we expected. We can handle *all* of our decorative chrome work on the machine, even screws and other small parts in *baskets*. We are not paying for this versatility thru poorer quality either. Our quality has improved and our control is uniform."

On bright parts of the Graflex cameras, the "Little Steve" is plating copper-nickel-chrome, but it is equally adaptable to hard chrome, cadmium, tin, anodizing, bright dipping and all types of immersion processing.

Keep these things in mind. "Little Steve" requires a low capital investment. It is extremely versatile. It will give you high production – improved plating quality and reduce costs.

Investigate the possibilities "Little Steve" offers today. Write for illustrative literature.

***Remember*—When you go *automatic* . . . go STEVENS!**

frederic b. **STEVENS,** inc.

DETROIT 16, MICH.

BUFFALO CHICAGO DETROIT CLEVELAND
DAYTON NEW HAVEN INDIANAPOLIS SPRINGFIELD (OHIO)

For more data circle 366 on Postpaid Card

with the PARAMOUNT
Finishing Touch

"It goes without saying that quality finishes are essential in our business," says Leavens Manufacturing Co., Attleboro, Mass., makers of fine jewelry, emblems and premiums. "We get best results in enamel polishing by using a Paramount soft wheel with grade F pumice. Paramount Felt Wheels cut faster, last longer and give us better quality than any other type we have used."

How about the finish on *your* products — does it meet the standards you and your customers have a right to expect? If not —

call your
Paramount Jobber today!

Paramount

Felt Wheels
Bobs, Sheet Felt

Bacon Felt Co.
447 West Water St., Taunton, Mass.

For more data circle 367 on Postpaid Card

Reducer for Baking Enamels

A solvent blend called Hi-Sol Enamel Reducer, developed by Potter Paint Co., Inc., can be used in higher proportions for thinning baking enamels than one solvent alone, the manufacturer reports.

By using a higher proportion of thinner, viscosity is reduced and air pressure can be dropped in spraying operations; leveling is improved; and cost of paint is reduced, since solvent costs less than paint; and running and sagging are reduced, the manufacturer states.

Manufacturer: Potter Paint Co., Inc., Cortland 22, N. Y.

For more data circle **17** on Reader Service Card

★ ★ ★

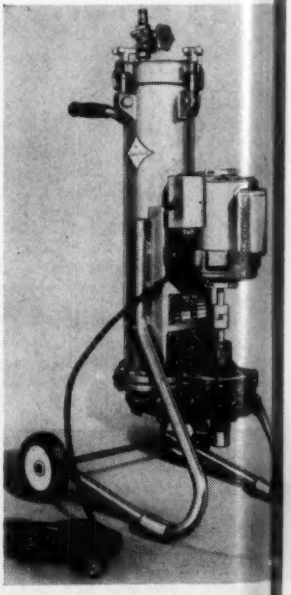
Portable Solution Filter

A low-cost portable filter provides 600 g.p.h. flow capacity and up to 20 square feet of filtration area.

Because the unit can be moved to any plating tank in the plant and connected directly to the plating tank, it helps to eliminate valving and piping between tanks and the need for separate filter stations throughout the plant.

Cleaning and change-over from one plating solution to another are facilitated by a quick-opening cover which exposes the cartridge-type filter.

The unit is built of materials which resist a wide range of corrosive solutions.



Portable Filter

TIME TESTED AND PLANT PROVEN JET CLEANERS

JET CLEANERS are economical, efficient, low-foaming spray cleaners for use on zinc, copper, brass or steel.

- They step-up the efficiency of your spray cleaning equipment.
- Reduce overflow loss, permitting wider range of concentration.
- Carry heavier dirt load without redeposition.
- Remove all types of soil.
- Are harmless to rack coatings and equipment.
- Non-toxic, dust-free, non-caking.
- Offer better results at lower cost.

Let the Northwest Cleaning Specialist explain JET CLEANERS' advantages in your production.

Licensed Manufacturers:
ALERT SUPPLY CO.
LOS ANGELES, CALIFORNIA
ARMALITE COMPANY, LTD.
TORONTO, CANADA

LO HI pH

NORTHWEST CHEMICAL CO.
9310 ROSELAWN DETROIT 4, MICH.
pioneers in pH control serving you since 32

For more data circle 368 on Postpaid Card

Bulletin 118, available from the manufacturer, gives complete details.

Manufacturer: Industrial Filter & Pump Mfg. Co., 5904 Ogden Ave., Chicago 50, Ill.

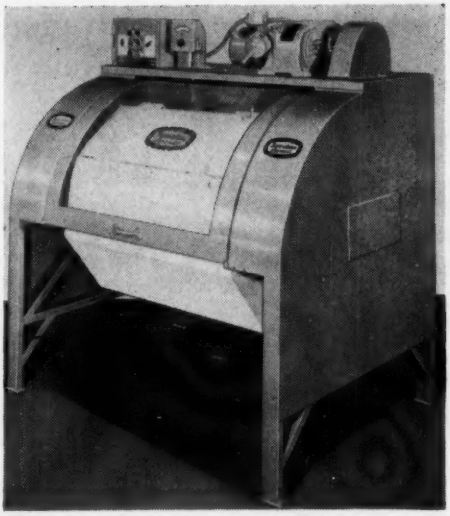
For more data circle **18** on Reader Service Card

★ ★ ★

Refrigerated Deburring Machine

A refrigerated tumbling machine specifically designed for deflashing and finishing of molded rubber parts has been announced by Almco, Queen Products Division of King-Seeley Corporation, Albert Lea, Minnesota.

Using liquid CO_2 as the refrigerant, the tumbling machine is equipped to freeze the rubber parts with liquid CO_2 right in the insulated barrel. This imparts a metallic hardness to the parts that facilitates the barrel finish-

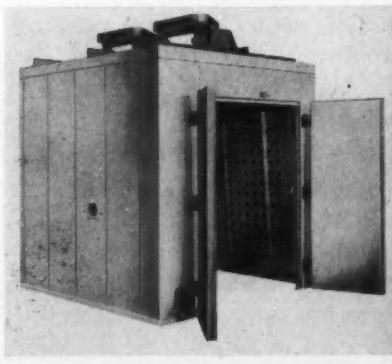


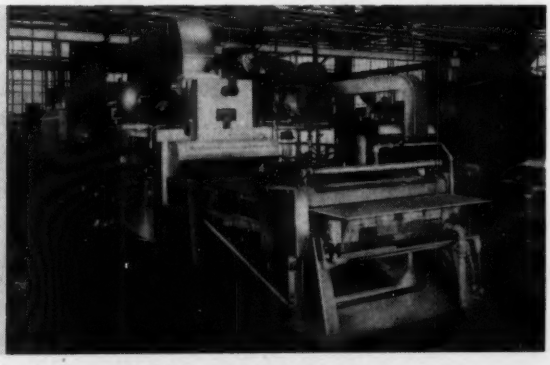
Almco insulated tumbling machines are refrigerated with liquid CO_2 to aid in tumble finishing of molded rubber parts

To page 116→

for the **MOST** **in DRYING or BAKING**

ROCKWELL OVENS





Cabinet, rack or truck type, single or multiple compartment—gas, electric or steam heated. Also special batch loading or conveyor types. Write for Catalog.

W. S. ROCKWELL COMPANY • 2909 Eliot St., Fairfield, Conn.

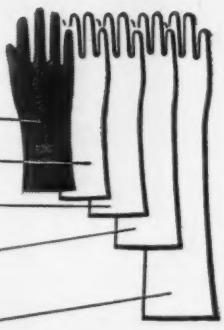
For more data circle 369 on Postpaid Card

These Stanzoil® Milled Neoprene Gloves

. . . Guarantee Positive Liquidproof Protection in 103 Basic Oils, Acids, Caustics, Greases, Solvents

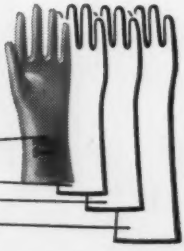
Black All Neoprene Stanzoils With Non-slip Grip

Model	Weight	Fingers	Length
N-31	Light	Straight	10½"
N-35	Light	Curved	10½"
N-32	Medium	Straight	11"
N-36	Medium	Curved	11"
N-41	Heavy	Straight	12"
N-44	Heavy	Curved	12"
N-51	Heavy	Straight	14"
N-33	Light	Straight	14"
N-54	Heavy	Curved	14"
N-71	Heavy	Straight	18"
N-73	Light	Straight	18"
N-74	Heavy	Curved	18"



White All Neoprene Stanzoils With Smooth Finish

Model	Weight	Fingers	Length
N-30	Light	Curved*	10½"
NW-31	Light	Straight	10½"
NW-32	Medium	Straight	11"
NW-41	Heavy	Straight	12"
NW-51	Heavy	Straight	14"
*Non-slip			



MAIL THIS COUPON TODAY

The PIONEER Rubber Co., 285 Tiffin Road . . . Willard, Ohio (Neoprene)

Please send me:

- ☐ 1958-59 Pioneer Industrial Glove Catalog
- ☐ 17"x 22" Full Line Glove Wall Chart
- ☐ Job Description Form For Free Hand Protection Analysis

Firm _____

Address _____

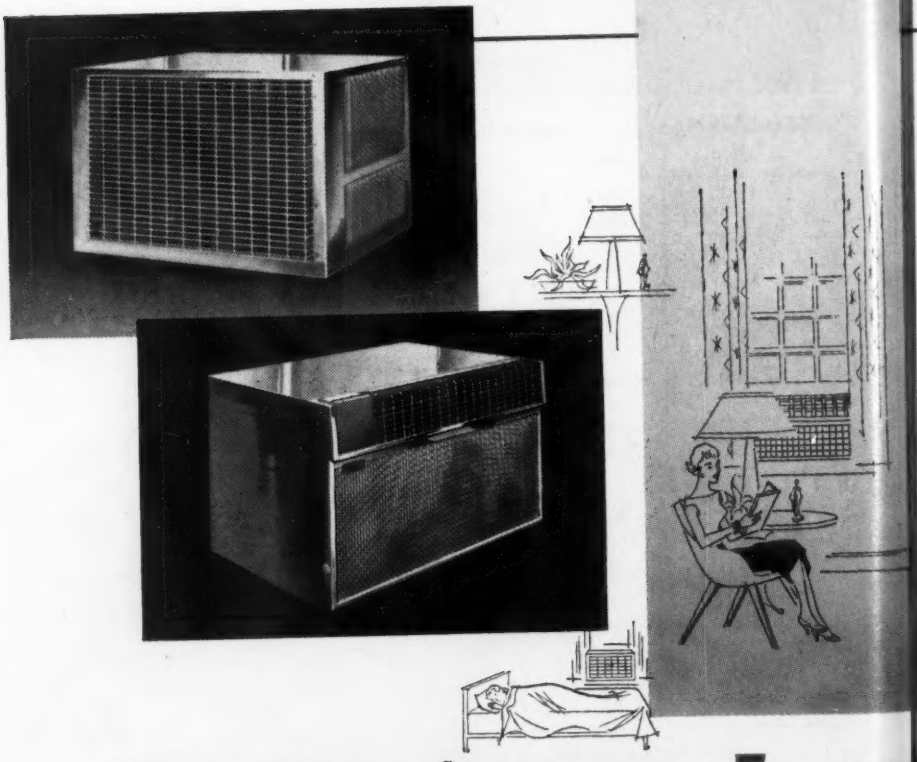
City _____ Zone _____ State _____

Requested by _____

For more data circle 370 on Postpaid Card

Amazing new one-coat finish for

DURAC



PITTSBURGH INDUSTRIAL FINISHE

PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTI

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

sh or Air Conditioners

THERMO-SETTING ACRYLIC ENAMEL

Gives you substantial cost savings . . . with no sacrifice in quality

Exceptional adhesion and resistance to corrosion and weather-wear, combined with easy-working properties, make DURACRON the perfect one-coat finish for air conditioners.

This amazing new acrylic enamel effects *substantial cost savings*—assures color-holding and exterior durability that *can be duplicated only by multiple coats of high-quality conventional baking enamel.*

DURACRON can be applied by a variety of high-speed methods —even on difficult-to-finish parts. Because of inherent hardness and flexibility, it withstands wear and tear of factory assembly and shipment. It provides unusual protection against many in-service hazards. High resistance to corrosive industrial and chemical fumes and salt air assures longer life and better service.

Extensive laboratory and field tests, as well as widespread use by leading manufacturers, have demonstrated convincingly DURACRON'S superior performance and cost savings.

Mail This Coupon Today →

• Write for free brochure containing detailed information about amazing new DURACRON. Explains what it is and how you can use it to have a better finish and reduce production costs.

Pittsburgh Plate Glass Company, Industrial Finishes Division, 1 Gateway Center, Pittsburgh, Pa.

Gentlemen: Please send me copy of your free booklet on new DURACRON Acrylic Enamel.

Name_____

Address_____

City_____ County_____ State_____

Name of Company_____

For more data circle 371 on Postpaid Card

BONDERITE

ALUMINUM SIDING TEST

Regular 1-coat paint finish over section of Bonderite treated aluminum siding. Formed after painting. Tested in salt spray 1500 hours.

Aluminum siding made by Hastings Aluminum Products, Inc. Hastings, Michigan

for ALUMINUM

Better paint adhesion...better corrosion control

In two hundred plants—many of them the leaders in their particular fields of aluminum fabrication—Bonderite for aluminum is being used today!

Bonderite makes it possible to take aluminum in the coil, run it through a continuous line in which the strip is cleaned, Bonderized, roll-coat painted, dried—and then recoiled.

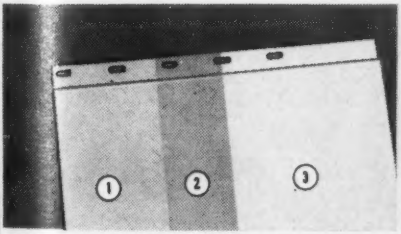
Because Bonderite gives paint such a secure foothold, it will stand severe forming operations (see photo below). With the Bonderite corrosion barrier at work, durability of the paint finish is almost indefinitely prolonged.

Bonderite meets and exceeds the requirements of Government Specification MIL-C-5541. Bare corrosion resistance is outstanding.

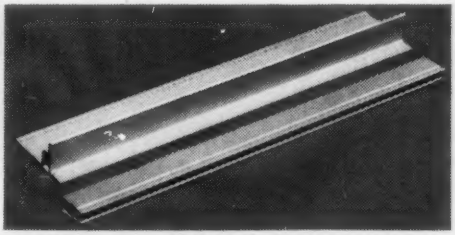
There's more than one type of Bonderite for aluminum. Besides the paint base, there's a Bonderite that creates a pleasant green coating, for use on architectural products. There's a Bonderite which protects without changing the characteristic color of the aluminum. Another Bonderite coats aluminum, steel and zinc—just the thing for mixed production.

There is a Bonderite, in fact, for every form of aluminum production, and for practically every alloy.

The big news in surface treatment for aluminum today is Bonderite! Let a Parker man tell you all about it!



Here's the 1-2-3 for durability of painted aluminum. Section of siding shows bare aluminum, (1); Bonderite treated, (2); and roll-coated paint, (3).



These aluminum window and screen frame sections were Bonderized and painted in the strip and formed after painting. There isn't a break in the finish anywhere!

Since 1914—leader in the field

PARKER RUST PROOF COMPANY
2172 E. Milwaukee, Detroit 11, Michigan
Tel: TRinity 5-3377

BONDERITE	BONDERITE and BONDERLUBE	PARCO COMPOUND	PARCO LUBRITE	TROPICAL
corrosion resistant paint base	aids in cold forming of metals	rust resistant	wear resistant for friction surfaces	heavy duty maintenance paints since 1883

**Bonderite, Bonderlube, Parco, Parco Lubrite—Reg. U.S. Pat. Off.*

For more data circle 372 on Postpaid Card

ing process. Freezing occurs both before and during the tumbling cycle.

The Almco liquid injection method of refrigeration is fully automatic, the flow being controlled by a solenoid valve and the amount governed by thermostat and timer. The rapid sublimation and uniform dispersion of the liquid CO_2 in the barrel results in quick freezing, assuring a minimum time cycle for processing the work load. The automatic thermostatic temperature controls provide for temperatures down to 100 deg. F. below zero.

A timer is provided which indicates by signal light when more CO_2 is needed, while a barrel timer controls the length of the tumbling operation.

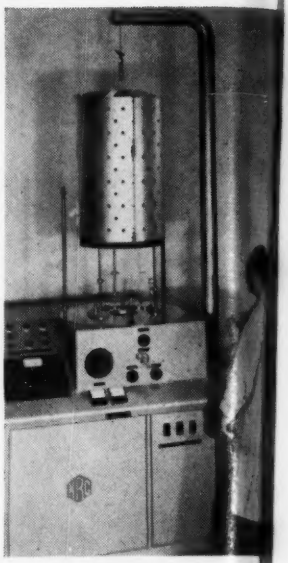
Manufacturer: Almco, Queen Products Div., King-Seeley Corp., 84 E. Main St., Albert Lea, Minnesota.

For more data circle **19** on Reader Service Card

Vacuum Metallizer

A bell-jar metallizing unit intended primarily for developmental work or limited-volume deposition of one or more materials under vacuum has been announced by NRC Equipment Corporation. Designated Model 3144, the unit will be used for production, research and development.

All elements including the power supply and vibration-isolated pumping system are contained



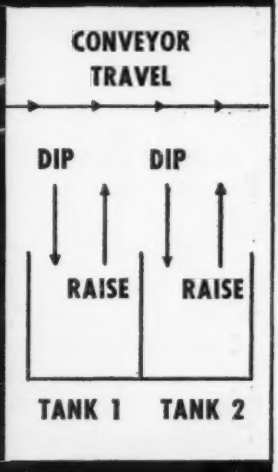
Bell-Type Metallizer

Rhodium
ELECTROPLATING SOLUTIONS
Technological knowledge acquired through many years of experience, plus special processes and equipment, assure the high quality of our Rhodium Plating Solutions.
Recommended for contact surfaces of switches, waveguide parts and other electrical applications, such as printed circuits...Can be applied in extremely heavy deposits, up to 100 milligrams per square inch.
Rhodium plating provides the advantages of whiteness, lustre and corrosion resistance of a precious metal.
Consult our staff, without obligation, about your specific plating problems.
SIGMUND COHN MFG. CO., INC.
121 SOUTH COLUMBUS AVENUE • MOUNT VERNON, NEW YORK
SINCE 1901 Specialists in the Unusual

For more data circle 373 on Postpaid Card

CLEANING or PICKLING...

PRODUCTION *And* **RESULTS** **UP**



FLOOR SPACE *And* **COSTS** **DOWN**

with Cincinnati AUTOMATIC DIP-PROCESSING

If you're interested in dip-processing cleaning or pickling *in minimum space*, here's a production-proved solution that saves time, floor space and processing solutions. Straight-up, straight-down dipping of parts baskets traveling on a closed loop monorail conveyor means smallest possible tanks, important savings in floor space, too.

The operation is completely automatic, from first dip through conveyor unloading, can be used for any dip-processing sequence. In pickling processes, stainless steel, lead or rubber-lined tanks are provided.

For more information on this or a complete range of equipment for metal cleaning and finishing, write to: **Cincinnati Cleaning and Finishing Machinery Co., 2008 Hageman St., Cincinnati 41, Ohio.**

For more data circle 374 on Postpaid Card

in a compact steel cabinet. Conveniently located controls and instruments enable the operator to run the unit without moving from his station. Raising and lowering the bell-jar is made almost effortless by provision of guide rods and a planetary gear-type winch.

The vacuum chamber is formed by a 30½-inch high bell jar and a 28-inch-diameter precision ground baseplate. A choice of bell-jars is offered: an 18-inch diameter pyrex unit with perforated metal shields, or a 24-inch-diameter mild or stainless steel unit with two eye-level sight glasses. The baseplate, which can be either stainless or nickel-plated mild steel, has one central 6-inch-diameter vacuum pumping port and seventeen one-inch-diameter holes for feed-throughs. Six of these are spares and are blanked off with easily removed O-ring gasketed disks. In the remainder are four filament posts mounted on power feed-throughs rated at 6 volts, 125 amperes; three high voltage or power feed - throughs which are rated either at 4000 volts, 10 milliamps. or 115 volts, 10 amps. These posts can be used either for glow discharge clean up work heater or for four work-support posts. One of these latter elements is mounted on a rotary seal and can be turned by a hand wheel on the control panel. All feed-throughs and supports can be quickly repositioned.

Manufacturer: NRC Equipment Corp., 160 Charlemont St., Newton, Mass.

For more data circle 20 on Reader Service Card

STEP UP YOUR WASHING

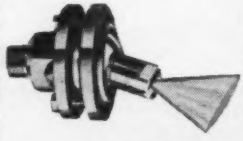
COATING . . . RINSING

with SPRAYING SYSTEMS CO.

Controlled Flow * SPRAY NOZZLES

*Once you select a given type and size of Spraying Systems spray nozzle, you can be sure that ALL nozzles like it will perform exactly the same. Pattern, impact, volume and distribution will be identical. To gain the important advantages of "controlled-flow" spraying specify Spraying Systems spray nozzles when you buy.

Write for Catalog 24



ADJUSTABLE JOINTS—For fast easy positioning and re-positioning of nozzles relative to work. Complete choice from ¼" to 2½" pipe size connections.

Write for Bulletin 97

SPRAYING SYSTEMS CO.

3229 Randolph Street • Bellwood, Illinois

For more data circle 375 on Postpaid Card

fostoria INFRA-RED SYSTEM

radiant heating news

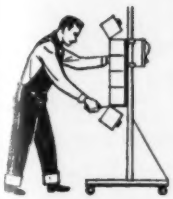
to help manufacturers improve production operations

How can Infrared Heat improve your production operations most Profitably?

While infrared radiant ovens may not be practical for *every* type of production heating, it is certainly true that infrared today has proved itself in applications in *all industries.* New uses are being found every day for this fast, efficient and most versatile heating tool. Chances are *your* product classification is among these typical industries now being served by Fostoria infrared ovens:

- Automotive
- Ceramics
- Electrical products
- Food
- Furniture (wood & metal)
- Glass
- Leather
- Metal products
- Paper
- Plastics
- Printing
- Textiles
- Wood and wood products
- Research Laboratories

Profit through INFRARED HEAT



Do you perform baking operations? . . . drying? . . . dehydration? . . . preheating? . . . curing? For these and many other industrial heating jobs infrared processing is unsurpassed. Clean, space-saving, more efficient and most profitable, when properly used.

Considering infrared heat for your processing? Logically, your first step is to consult an infrared oven manufacturer with long experience in your field. And naturally, the most effective low-cost use of infrared can best be obtained through the manufacturing skill born of extensive application experience in *all* fields . . . like you get from Fostoria's engineering staff.

Cooperating with leading infrared source manufacturers, Fostoria was the first to introduce radiant ovens and oven sections in utilizing infrared energy. Today, Fostoria is the only major oven manufacturer making equipment that incorporates all three* practical sources of radiant heat.

Profit by ADVANCE TESTING

In any application where a choice of methods is practicable, making tests in advance is the most rewarding way to decide on the process to be used. Proper selection, design, engineering, and installation to fit your special needs are essential for cost-saving efficiency. Our Research and Development Center is fully staffed and equipped to assist you.

Profit through FABRICATING FLEXIBILITY

Fostoria production facilities are geared to deliver the industry's finest infrared ovens regardless of the type you need. Being the pioneer—well established, financially stable, most interested in infrared development—we believe we can offer radiant heating skills available nowhere else.

Profit by NATIONWIDE SERVICE

Fostoria Sales Engineers are located in all major industrial areas. You will find them competent and reliable. They will give you prompt, on-the-job attention that makes every Fostoria installation a satisfactory one . . . a profitable one.

Send for free book . . . "Radiant Heat-Applications Unlimited" will be sent without charge on request. If you include your application requirements, we will include recommendations in our reply. Write to Department 522.

THE FOSTORIA PRESSED STEEL CORPORATION • Fostoria, Ohio

For more data circle 376 on Postpaid Card

Gold Dye for Chromate Coatings

Allied Research Products, Inc., has developed a gold dye for clear Iridite coatings. Designated Iridite GO-1, this dye will color chromate-coated zinc products such as refrigerator shelves, wire goods, tubing and other items.

Parts are dyed by immersing for 15 to 30 seconds in the dye solution, temperature of which is kept between 70 and 90 deg. F.

Manufacturer: Allied Research Products, Inc., 4004-06 E. Monument St., Baltimore 5, Md.

For more data circle **21** on Reader Service Card

★ ★ ★

Strip Coating

International Thixstrip No. 1-A is an aluminum-colored plastic peel-type coating produced by International Chemical Company, Inc. Designed primarily as a spray booth coating, it is also suitable for use as a protective film for metal parts during manufacture and storage.

Properties: Thixstrip No. 1-A produces a strong film that has excellent resistance to water, naphtha, oils, and most paint thinners. It can be applied by brush, spray, or dip, and the resultant permanently flexible but dry film can be removed in a continuous film.

Manufacturer: International Chemical Company, Inc., 2628-48 N. Mascher St., Philadelphia 33, Pa.

For more data circle **22** on Reader Service Card

★ ★ ★

Self-Powered Spray Gun

A completely self-contained spray gun which will spray any liquid that can be thinned to proper consistency has been introduced by Sprayon Products, Inc. The unit makes use of a separate can of aerosol propellant gas to supply atomizing pressure. No electricity, compressor or other power source is required.

Collect Dirt-Don't Spread It Around

The Dust-All TACK RAG collects dust, dirt and lint from surfaces before painting and fine finishing. Stays soft and tacky indefinitely. Leaves no surface film or residue. Non-combustible.

Made in 18"x36" size folded to 4½"x6", bulk packed or in individual glassine bags, also available in rolls to your specified yardage. Your selection of various weaves of cloth and amount of tack from very light to extra heavy.

MARD PRODUCTS, INC.

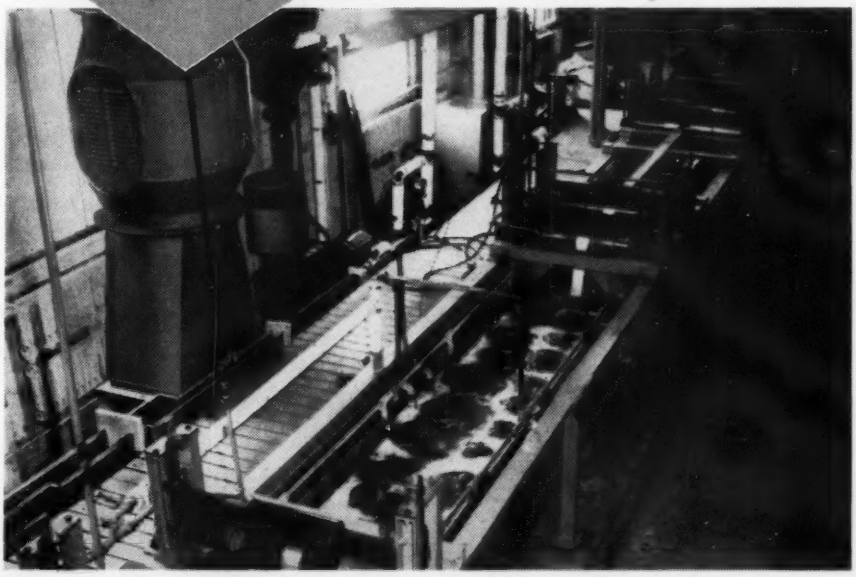
1020 E. TEN MILE ROAD • HAZEL PARK, MICHIGAN

Canadian Representative: Cromac Chemical Company, Ltd., Toronto-Montreal

For more data circle 377 on Postpaid Card

THIS FAN

helps engineers design better high-speed continuous systems



DeBothezat Bifurcator Fan installed in continuous strip test line at Matawan, N. J., plant of Hanson-Van Winkle-Munning Company.

This DeBothezat Bifurcator® Fan removes large volumes of corrosive fumes from a continuous high-speed test line at the Matawan, N. J., plant of Hanson-Van Winkle-Munning Company. Designed to exactly duplicate conditions in a given plant operation, the line is used to solve problems in strip anodizing, sealing and dyeing.

DeBothezat Bifurcator direct motor drive assures steady, trouble-free operation by eliminating belt problems. In-the-duct installation saves space and boosts efficiency by doing away with bends and angles. The Bifurcator motor is mounted in a separate chamber and corrosive fumes are bypassed around it.

From development of new systems to improvement of existing operations, DeBothezat Bifurcator Fans provide the correct solutions to all tank ventilation problems. Address Dept. PF-559 for DeBothezat Bulletin DT-7, "Design Data For Lateral Tank Ventilation."

De Bothezat™ FANS

A DIVISION OF

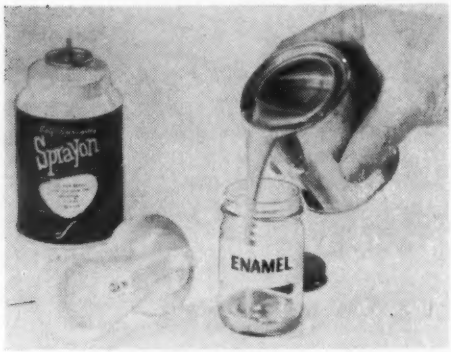
American Machine and Metals, Inc.

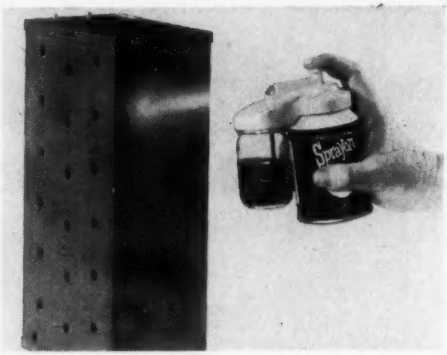
EAST MOLINE, ILLINOIS

IN CANADA: Represented by DOUGLAS ENGINEERING CO., LTD., Toronto • Montreal

FOR FURTHER INFORMATION SEE OUR CATALOG IN SWEET'S PLANT ENGINEERING FILE OR WRITE FOR COPY

For more data circle 378 on Postpaid Card





Jet-Pak: aerosol power pack for spraying paints, lacquers, rust preventives, other liquids. Unit is completely self-contained, requires no electricity or compressor.

Called Jet-Pak, the small spray gun is useful for touch-up operations where paints, varnishes or lacquers must be applied to a limited area. Jet-Pak is also recommended for applying lubricants, anti-rust compounds and other special solutions.

Extra Jet-Pak jars are available so that the user can apply a number of different paints or other liquids with the same spray unit.

Manufacturer: Sprayon Products, Inc., 2077 E. 65th St., Cleveland 3, Ohio.

For more data circle **23** on Reader Service Card

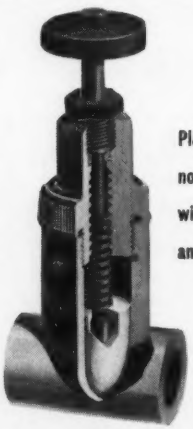
Mr. Carl Tylka, Director
Cooper Alloy Technical Service Dept.

What's your fluid handling problem? Vanton's Technical Service can help you solve it!

Whatever your pumping, valving, or piping problem—equipment specification, construction material, circuit design and layout—Vanton's fully competent, experienced Technical Service staff can be of help to you.

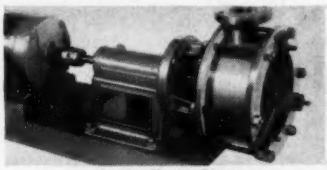
Headed by Mr. Carl Tylka, this new Cooper Alloy service has been set up to assist industry in solution of fluid handling equipment, design, and operational problems. It typifies Cooper Alloy's forward-looking approach to cooperation between user and supplier.

To set the ball rolling, just write to Carl Tylka, Technical Service director—and you'll get action!



Plastic Gate Valve now available with socket-weld and threaded ends

A complete line of Vanton socket-weld and threaded-end throttliable plastic gate valves is now available from Vanton in sizes from ½" to 2" in both PVC and Kralastic (U. S. Rubber Co.). What's more, you can have off-the-shelf delivery. The Vanton throttliable gate valve, first of its kind, offers the combined features of straight-through, no-pressure-drop flow with close throttling control. The combination of these two features of a gate and a globe valve makes these Vanton plastic valves the most versatile available. They are being used on the most severe services in the chemical, pharmaceutical, photographic, and other industries. Write for folder.



Another Vanton First:

All-PVC Centrifugal Pump!

Stops Corrosion, Avoids Contamination

Vanton Centrifugal Pumps are constructed with all wetted parts of unplasticized, unmodified polyvinyl chloride, offering the broadest possible range of chemical resistance as well as the non-contaminating transfer of sensitive solutions. Vanton PVC Centrifugal Pumps are generally lower in cost than special alloy pumps for similar applications. Pumps are available in a broad range of sizes: capacity 10 thru 180 GPM; discharge head to 100 ft.

Casing: The heavy sectioned PVC casing is totally protected by a cast iron frame giving rigid support.

Impeller: The impellers are molded, and are of a dynamically balanced design. Vanes are contoured for maximum efficiency.

Bearing Pedestal: Low friction roller bearings are used for quiet operation and are widely spaced to reduce loading. A grease reservoir is provided to assure long bearing life. The heavy duty rugged bearing pedestal allows for rigidity of construction.

Mechanical Seal: Vanton PVC Centrifugals are equipped with mechanical shaft seals of the latest design. Seals are available in a range of materials to cover virtually all corrosive applications. Fluid contacts only facings of rotating and stationary rings. Rotating rings are available in DuPont Teflon or Carbon, and stationary rings in ceramic or Stellite. Stationary rings can be reversed for additional use after long periods of service.

For further information, write to Vanton Pump Division, Cooper Alloy Corporation, Hillside, N. J.

For more data circle 379 on Postpaid Card

ionXchange

DO YOU WANT TO SAVE MONEY?

Here is how to solve some waste disposal problems -and reduce costs at the same time

IonXchangers of several types, and various units of allied equipment, as designed and manufactured by Illinois Water Treatment Company, offer a number of money-saving opportunities. *For example, consider the waste water from rinse tanks.* Contaminants can be removed and concentrated, and *pure* water returned to the rinse system. In some instances, chrome and other valuable metals can be recovered from the rinse water. *For another example, consider plating solutions* which, under many circumstances, become polluted and less efficient. The contaminating materials can be removed, recovered if valuable, and the bath maintained at high purity. Also, impurities found in water supplies, to spoil the appearance of plated or anodized parts, can be removed so that uniform quality of work is assured. Spent metal finishing solutions such as aluminum bright dip can be purified for re-use. Toxicity in otherwise-clean waste can be eliminated. All of these treatments will, in one way or another, contribute substantially to improved products, more efficient operations, and lowered costs. *Specific possibilities of applications of ionXchange in your plant can be determined by talking to your ILLCO-WAY representative.*

IonXchanger recovery unit for plating solutions

ILLINOIS WATER TREATMENT CO.
840 CEDAR ST.,
ROCKFORD, ILLINOIS

NEW YORK OFFICE: 141 E. 44th St., New York 17, N.Y.
CANADIAN DIST.: Pumps & Softeners, Ltd., London, Can.

ILLCO-WAY

For more data circle 380 on Postpaid Card

Buffing Compound Remover

Enthol 230, a liquid detergent which removes buffing compounds rapidly, has been announced by Enthone, Inc.

The product penetrates and dissolves hardened buffing compounds by forming soluble soaps with them. Solid abrasive particles are detached and settle to the bottom of the tank.

Two to four gallons of Enthol 230 dissolved in water will make up 100 gallons of cleaning solution. Such a solution operated at 150 to 200 deg. F. will remove buffing and polishing compounds from steel, nickel plate, copper, brass, zinc base die castings, gold, silver, aluminum and most other basis metals. It lasts four to six weeks in production without replenishment and has high tolerance to contamination by dissolved soil. The solution has a brightening effect on copper and copper alloys.

Enthol 230 solutions are effective in ultrasonic cleaning, the manufacturer states.

Literature on Enthol 230 is available from the manufacturer.

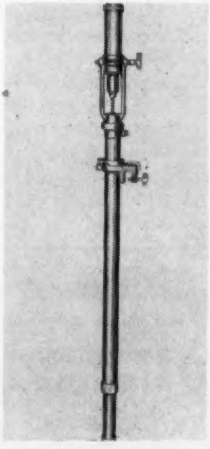
Manufacturer: Enthone, Inc., 442 Elm St., New Haven 11, Conn.

For more data circle **24** on Reader Service Card

★ ★ ★

Pump

An air-operated reciprocating-type stainless steel pump has been developed



Stainless Steel Pogo Pump

Here's how you can save money by

DEGREES

TRERICE SELF-OPERATING TEMPERATURE REGULATORS

cut your liquid processing costs by maintaining the *one best* temperature. Trerice No. 90000 and No. 90400 Self-Operating Temperature Regulators insure automatic, precision control of liquid temperatures between 40° F. and 300° F. No air or electricity required for operation. Available in either direct or reverse acting models; stainless steel or bronze trim. Most ranges and sizes in stock.

Write today for Bulletin No. 1000

Name.....

Address.....

City..... Zone..... State.....

H.O. TRERICE CO. 1427 W. Lafayette Blvd. Detroit 16, Michigan

For more data circle 381 on Postpaid Card

280 reasons later...

and here's the 281st reason

HOW LONG DOES IT TAKE TO GET AHEAD? A few short years after its founding, **PRODUCTS FINISHING** was widely established as the authoritative publication in the finishes-on-metal industry. Circulation growth and advertising effectiveness paralleled reader acceptance until today, after 280 issues, **PRODUCTS FINISHING** is the unquestioned leader with more circulation in the plating field PLUS more circulation in the painting field at the lowest cost per thousand circulation!

JUNE products finishing FEATURES

AT THE A.E.S. EXPOSITION
... make yourself at home in Products Finishing's
"COMFORT-COMES-FIRST" LOUNGE

COMPLETE "SHOW-IN-PRINT"
- List of Exhibitors
- Products on Display
- Exhibitors Personnel
- Exposition Floor Plan

the American Electroplaters' Society **CONVENTION** and Industrial Finishing **EXPOSITION**
Detroit . . . June 14-19, 1959
June **PRODUCTS FINISHING** is an outstanding editorial and advertising event . . .

EXTRA CIRCULATION AT THE SHOW
EXTRA READERSHIP "AT HOME"

. . . throughout the finishes-on-metal industry, all eyes will be on **PRODUCTS FINISHING.** The June issue is a "must" for advertisers:
MAKE SPACE RESERVATIONS EARLY
Early Closing . . . May 5th . . . For Early Mailing (10 days in advance of Show)

products finishing

BPA

431 MAIN STREET, CINCINNATI 2, OHIO

by the Binks Manufacturing Co. This pump, called the "Pogo SS," is designed for pumping and transferring liquids from 55-gallon containers to the point of application.

This pump is especially useful for handling fluids that might be contaminated, such as acids and other corrosive liquids.

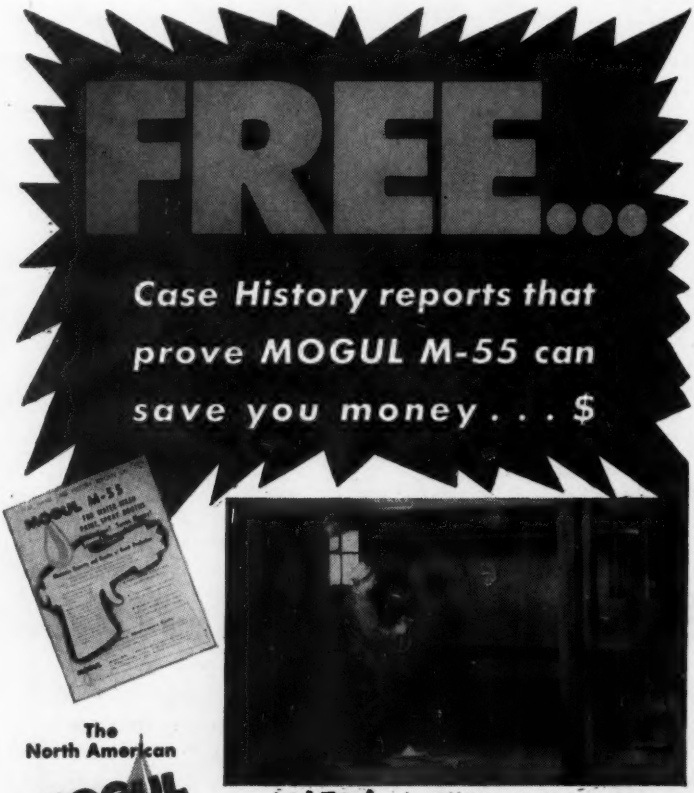
The "Pogo SS" weighs less than 20 pounds and is designed with the air motor and pump sections completely separated to eliminate the possibility of material entering the air motor or other critical parts.

The pump delivers from three to five g.p.m., producing on both "up" and "down" strokes.

For an illustrated bulletin describing the pump write to the manufacturer.

Manufacturer: Binks Manufacturing Co., 3118-40 W. Carroll Ave., Chicago, Illinois.

For more data circle **25** on Reader Service Card



The North American MOGUL Products Company

Standard Building
Cleveland 13, Ohio

. . . Write for literature and actual case history reports on results.

NEW... MOGUL M-55 liquid treatment for water wash paint spray booths is SAFE to use, will not harm personnel. Provides an excellent paint blanket . . . protects equipment and keeps your water circulation system at top operating efficiency. A 60 day trial offer will prove MOGUL M-55 results in your own operations.

For more data circle 382 on Postpaid Card

★ ★ ★

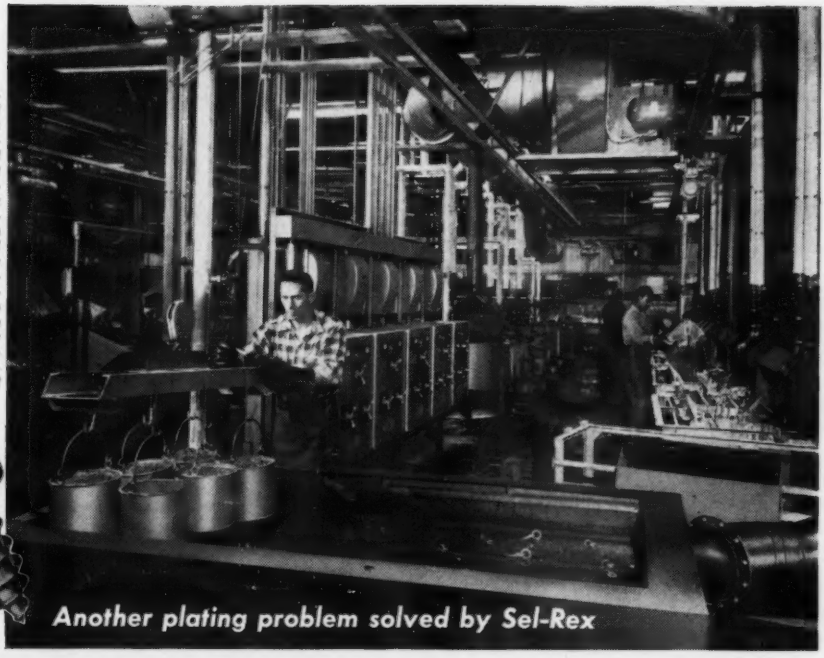
Conveyor

A carrier-type conveyor made by Econ-O-Veyor Corporation is useful for transporting parts being finished through spray booths, drying ovens, baking ovens and so on.

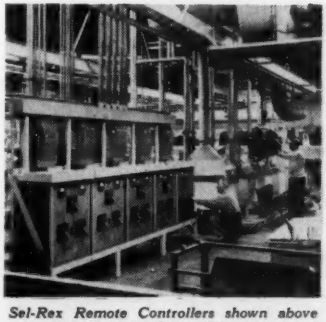
The conveyor consists of a series of four-wheel trolleys connected at six- or 12-inch intervals and carried by a track consisting of four rails. A fifth horizontal wheel runs between the rails to enable the conveyor to make horizontal turns. The four vertical wheels make possible vertical turns and at the same time support the weight.

The conveyor is driven by a caterpillar chain-type drive, said to

View of monorail-automated Parker-Kalon plating facilities designed and laid-out with the assistance of Sel-Rex Engineers. Parker-Kalon has standardized with Sel-Rex plating equipment and supplies which help them to attain the quality for which P-K fasteners are famous the world over.



PARKER-KALON INCREASES PRODUCTION AND IMPROVES PLATING QUALITY WITH FIVE SEL-REX RECTIFIERS



Sel-Rex Remote Controllers shown above connect to three 16 Volt, 3000 ampere, and two 12 Volt, 2000 ampere Sel-Rex Selenium Rectifiers installed on the roof of Parker-Kalon's new 267,000 square-foot plant.

The world's leading manufacturer of self-tapping screws, Parker-Kalon division, General American Transportation Corp., Clifton, N. J., electroplates billions of screws a year in the extensive facilities pictured above. The dependable D.C. power for this tremendous operation is supplied by 5 SEL-REX Selenium Rectifiers, remotely controlled.

According to Mr. H. Rosenberg, works manager, these SEL-REX Rectifiers not only increased production appreciably, but also improved the quality of zinc, cadmium, nickel, copper and brass plating of their wide range of standard and special fasteners. SEL-REX also had the pleasure of working closely with Parker-Kalon engineers in layout and design of the special electroplating equipment required by this exacting application.

Whatever your plating problem — power, precious metals, equipment, plant layout or procedures — SEL-REX Representatives are trained to "Custom Engineer" solutions to our mutual profit. Send for FREE technical data and other case histories, and see for yourself ... we may have solved your problems last month.

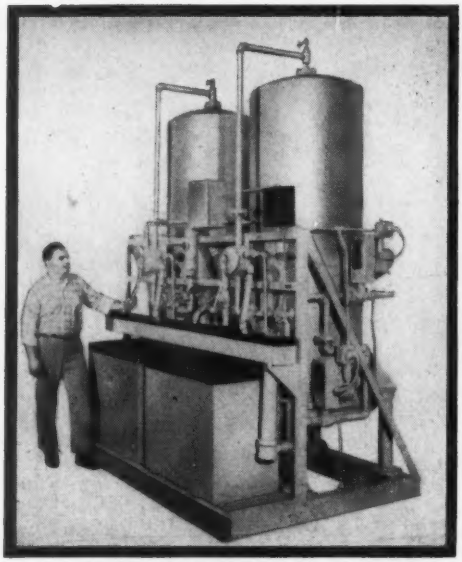
Sel-Rex®

SEL-REX CORPORATION

NUTLEY 10, NEW JERSEY

Manufacturers of Exclusive Precious Metals Processes, Metallic Power Rectifiers, Airborne Power Equipment, Liquid Clarification Filters, Metal Finishing Equipment and Supplies

For more data circle 383 on Postpaid Card



BARNSTEAD DEMINERALIZERS FOR METAL FINISHING IN CAPACITIES OF FROM 30 to 2500 G.P.H.

In rinsing or plating . . . in anodizing or make-up . . . in fact, wherever pure, mineral-free water is a necessity . . . Barnstead Demineralizers can save you money. First, because they are versatile: they come in all sizes from 30 to 2500 gallons per hour and in mixed-bed, two-bed, and four-bed models. Second, because they are low-cost in operation, producing pure water for as little as 5c per thousand gallons. Third, you get authoritative answers from Barnstead — with over 75 years' experience in ALL phases of producing pure water for all industrial applications.

NEW LITERATURE:

Catalog 127-A illustrates Barnstead's complete line of water demineralizers, and presents factual information which can help you reduce waste and save money.

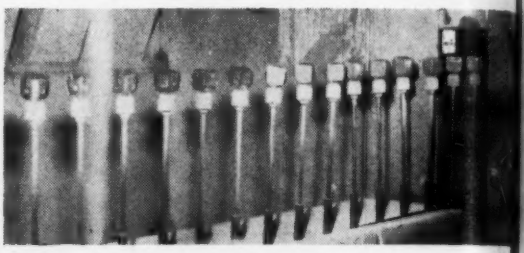
Barnstead
STILL AND STERILIZER CO.

12 Lanesville Terrace, Boston 31, Mass.

For more data circle 384 on Postpaid Card

operate smoothly, even at low speeds.

Parts being carried are supported by spindles connected to bars carried by trolley plates. Spindles can be separated by almost any distance desired.



Spindle-mounted parts on Econ-O-Veyor carrier-type conveyor pass through electrostatic spray installation

Spindles are said to have unusual stability, allowing them to support up to 50 pounds per unit.

Manufacturer: Econ-O-Veyor Corp., 224 Glen Cove Ave., Glen Cove, N. Y.

For more data circle **26** on Reader Service Card

★ ★ ★

24K Acid Bright Gold

Technic, Inc., recently introduced Orosene 999, an acid bright gold that produces hard, ductile 24K bright gold electroplates by either tank or barrel plating methods.

The combination of hardness and ductility offered by this product is accomplished by "preferred orientation of the gold micro crystals and crystal lattice," it is stated.

Orosene 999 contains no sulfur, antimony or silver, produces deposits with excellent resistance to tarnishing.

In barrel plating, the Technic solution is said to have excellent throwing power and leveling properties. Control is simple: one addition agent required.

A brochure containing complete data on Orosene 999 is available from the manufacturer.

Manufacturer: Technic, Inc., 39 Snow St., Providence, R. I.

For more data circle **27** on Reader Service Card

MAY, 1959

1	17	33	49	65	81	97	113	129	145	301-2nd Cov.	330	346	362	378	394	410	426	442
2	18	34	50	66	82	98	114	130	146	302-3rd Cov.	331	347	363	379	395	411	427	443
3	19	35	51	67	83	99	115	131	147	303-4th Cov.	332	348	364	380	396	412	428	444
4	20	36	52	68	84	100	116	132	148	304	317	333	349	365	381	397	413	429	445
5	21	37	53	69	85	101	117	133	149	305	318	334	350	366	382	398	414	430	446
6	22	38	54	70	86	102	118	134	150	306	319	335	351	367	383	399	415	431	447
7	23	39	55	71	87	103	119	135	151	307	320	336	352	368	384	400	416	432	448
8	24	40	56	72	88	104	120	136	152	308	321	337	353	369	385	401	417	433	449
9	25	41	57	73	89	105	121	137	153	309	322	338	354	370	386	402	418	434	450
10	26	42	58	74	90	106	122	138	154	310	323	339	355	371	387	403	419	435	451
11	27	43	59	75	91	107	123	139	155	311	324	340	356	372	388	404	420	436	452
12	28	44	60	76	92	108	124	140	156	312	325	341	357	373	389	405	421	437	453
13	29	45	61	77	93	109	125	141	157	313	326	342	358	374	390	406	422	438	454
14	30	46	62	78	94	110	126	142	158	314	327	343	359	375	391	407	423	439	455
15	31	47	63	79	95	111	127	143	159	315	328	344	360	376	392	408	424	440	456
16	32	48	64	80	96	112	128	144	160	316	329	345	361	377	393	409	425	441	457

NAME _____ POSITION _____

COMPANY _____

STREET _____

CITY _____ ZONE _____ STATE _____

PRODUCTS MANUFACTURED _____

Circle numbers (NOT PAGE NUMBERS) to request information

MAY, 1959

1	17	33	49	65	81	97	113	129	145	301-2nd Cov.	330	346	362	378	394	410	426	442
2	18	34	50	66	82	98	114	130	146	302-3rd Cov.	331	347	363	379	395	411	427	443
3	19	35	51	67	83	99	115	131	147	303-4th Cov.	332	348	364	380	396	412	428	444
4	20	36	52	68	84	100	116	132	148	304	317	333	349	365	381	397	413	429	445
5	21	37	53	69	85	101	117	133	149	305	318	334	350	366	382	398	414	430	446
6	22	38	54	70	86	102	118	134	150	306	319	335	351	367	383	399	415	431	447
7	23	39	55	71	87	103	119	135	151	307	320	336	352	368	384	400	416	432	448
8	24	40	56	72	88	104	120	136	152	308	321	337	353	369	385	401	417	433	449
9	25	41	57	73	89	105	121	137	153	309	322	338	354	370	386	402	418	434	450
10	26	42	58	74	90	106	122	138	154	310	323	339	355	371	387	403	419	435	451
11	27	43	59	75	91	107	123	139	155	311	324	340	356	372	388	404	420	436	452
12	28	44	60	76	92	108	124	140	156	312	325	341	357	373	389	405	421	437	453
13	29	45	61	77	93	109	125	141	157	313	326	342	358	374	390	406	422	438	454
14	30	46	62	78	94	110	126	142	158	314	327	343	359	375	391	407	423	439	455
15	31	47	63	79	95	111	127	143	159	315	328	344	360	376	392	408	424	440	456
16	32	48	64	80	96	112	128	144	160	316	329	345	361	377	393	409	425	441	457

NAME _____ POSITION _____

COMPANY _____

STREET _____

CITY _____ ZONE _____ STATE _____

PRODUCTS MANUFACTURED _____

FIRST CLASS
PERMIT No. 1702
CINCINNATI, OHIO

BUSINESS REPLY MAIL
No Postage Stamp Necessary If Mailed in the United States

POSTAGE WILL BE PAID BY—

Products Finishing

431 MAIN ST.

CINCINNATI 2, OHIO

Your Monthly Source For Finishing Ideas

FIRST CLASS
PERMIT No. 1702
CINCINNATI, OHIO

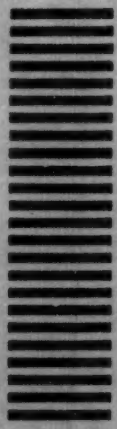
BUSINESS REPLY MAIL
No Postage Stamp Necessary If Mailed in the United States

POSTAGE WILL BE PAID BY—

Products Finishing

431 MAIN ST.

CINCINNATI 2, OHIO



PRODUCT LITERATURE

30. Barrel Finishing Booklet
Booklet describes barrel finishing equipment, materials, how to use them. Abbott Ball Co., Railroad Ave., West Hartford 10, Conn.

31. Automatic Polishing and Buffing Machines
A 16-page booklet discusses basic factors to consider when selecting one of seven types of straight-line machines. Detailed information is given on design features, applications, operating features. Acme Manufacturing Co., 1400 E. Nine Mile Rd., Detroit 20, Mich.

32. Ultrasonic Cleaning Systems
Literature on heavy-duty industrial ultrasonic cleaning equipment. Acoustica Associates, Inc., 26 Windsor Ave., Mineola, N. Y.

33. Clear Semi-Gloss Lacquer
Information on Agateen No. 2B semi-gloss lacquer. Agate Lacquer Mfg. Co., Inc., 11-13 43rd Rd., Long Island City, New York.

34. Chromium Chemicals
Booklet entitled "Mutual Chromium Chemicals" offers information on chromic acid and Mutual products. Bulletin No. 52. Allied Chemical Corp., Solvay Process Div., 61 Broadway, New York 6, N. Y.

35. Finishing Chemicals, Equipment
Data file on a complete line of metal-finishing chemicals and equipment. Allied Research Products, Inc., 4004-06 E. Monument St., Baltimore 5, Md.

36. Conveyor Chain
Bulletin illustrates and describes Alvey-Ferguson engineered Conveyor Chain, contains dimensional prints of various sizes of special chain, includes installation photographs showing its use as slat conveyors, pusher-bar boosters and as side chains for open types of belting in metal cleaning and processing machines. The Alvey-Ferguson Co., 626 Disney St., Cincinnati 9, Ohio.

37. Guide to Chemical Treatments for Metals
An eight-page brochure describes various chemical conversion coatings for steel, aluminum, galvanized iron, zinc and cadmium plated surfaces; for corrosion resistance, paint bonding, drawing and forming, and for protection of friction surfaces. Also listed are specification chemicals for the government and its subcontractors. Amchem Products, Inc., Ambler 14, Pa.

38. Cut Anode Waste
Information on reducing waste of costly anodes by purifying plating baths with activated carbon so as to reduce rejects. Chemicals Div., Atlas Powder Co., Wilmington 99, Del.

39. Felt Polishing Products
A 12-page booklet describes felt wheels, tells about typical applications; has table to aid in selection of felt wheels; table of specifications; directions for setting up and caring for felt wheels; maintenance "do's" and "don'ts"; other useful data. Bacon Felt Co., 447 W. Water St., Taunton, Massachusetts.

40. Reduce Plating Waste
Catalog 127-A illustrates a complete line of water demineralizers, presents information that can help to reduce waste and save money. Barnstead Still & Sterilizer Co., 12 Lanesville Terrace, Boston 31, Mass.

41. Paint Stripper
Brochure gives complete details on Epoxystrip, a paint stripper formulated to remove tough finishes easily. Beck Equipment Co., 3350 W. 137th St., Cleveland 11, Ohio.

42. Plastic and Rubber Coatings
Leaflet shows typical applications for Belke rubber and plastic coatings. These coatings are useful in protecting formed wire products, tool handles, chains, conveyor hooks, tote baskets, many other products. Belke Manufacturing Co., 947 N. Cicero Ave., Chicago 51, Ill.

43. Chromic Acid
Information on BFC chromic acid. Better Finishes & Coatings, Inc., 268 Doremus Ave., Newark 5, N. J.

44. Modular Electrostatic Spray
Bulletin describes modular electrostatic spray systems, self-contained packages that include all the equipment and accessories necessary to apply paint by electrostatic spraying. Binks Manufacturing Co., 3118-40 W. Carroll Ave., Chicago 12, Illinois.

45. Degreasing Solvent
Information on Blacosolv degreasing solvent. Dept. 104-1, G. S. Blakeslee & Co., 1844 S. Laramie Ave., Chicago 50, Illinois.

46. Tack Cloth
Literature on treated cloths that pick up dust and lint prior to paint finishing. Bond Chemical Products Co., 2639 N. Clybourn Ave., Chicago 14, Ill.

47. Buffs
Data sheet describes Buff Type No. 20-RD for finishing stainless steel, brass and other metals. Geo. R. Churchill Co., Inc., Dept. PF, Hingham, Mass.

48. Complete Finishing Systems
Catalog No. 200 describes company's design, fabrication and installation services for complete finishing systems. Includes information on equipment for pre-paint treatment, paint application, paint drying and baking, make-up air and exhaust systems. Contains descriptions of typical installations and detailed information on individual components. Cincinnati Cleaning & Finishing Machinery Co., 2008 Hageman St., Cincinnati 41, Ohio.

49. Pressure-Sensitive Tape Dispenser
Bulletin No. 525 tells about the Brady Tapematic, an electrically operated machine that will dispense masking tape, labels, pre-cut masks, automatically. W. H. Brady Co., 746 W. Glendale Ave., Milwaukee 9, Wisconsin.

50. Metal Cleaning Equipment
Bulletin 521 describes company's line of metal-cleaning equipment. Circo Equipment Co., 122 Central Ave., Clark (Rahway) N. J.

51. Fused-Quartz Infrared Ovens
Bulletin RLC-201 shows typical applications of Clepco Fused Quartz Infrared ovens, lists features of these ovens, illustrates portable ovens, horizontal ovens. The Cleveland Process Co., 1965 E. 57th St., Cleveland 3, Ohio.

Sethco
"Canned"
FILTER PUMP
• ALL-IN-ONE
• LEAKPROOF
• PORTABLE
STAINLESS STEEL or FULL VIEW FILTER CHAMBER
Designed with components of construction for your filtration applications.
• SEI-10; Stainless Steel 304
• LEI-10; High temp. Epoxy-Lucite
• PEI-10; Epoxy-Pyrex to 250°F.
• TUBES: Cotton, Dynel, Porous Stone/Carbon
• 'CANNED' PUMP: Stainless Steel, Leakproof, Centrifugal
• MOTOR: 1/3 HP totally enclosed
the PUMP is housed in the MOTOR
send for fact folder
Sethco Mfg. Co.
2292 Babylon Tpk., Merrick, N. Y.
For more data circle 385 on Postpaid Card

52. Rhodium Plating Instructions
Handy pocket-sized booklet gives complete instructions for rhodium plating, includes data on solution preparation, work preparation, temperatures and current densities, tanks, anodes, and so on. Sigmund Cohn Mfg. Co., Inc., 121 S. Columbus Ave., Mount Vernon, N. Y.

53. Filters for Electroplating
"A New Concept of Electroplating Filtration" is the title of a new booklet which explains how Fulflo filters with Honeycomb filter tubes provide tank turnover up to three times per hour, making it possible to filter the entire solution up to four times in an eight-hour day. Bulletin GEO-508. Commercial Filters Corporation, Melrose, Mass.

54. Aluminum Etchant
Technical data sheet on Cowles AK tells how this formulation works on all aluminum alloys, prevents build-up of scale by means of a special sequestering agent. Cowles Chemical Co., 7016 Euclid Ave., Cleveland 3, Ohio.

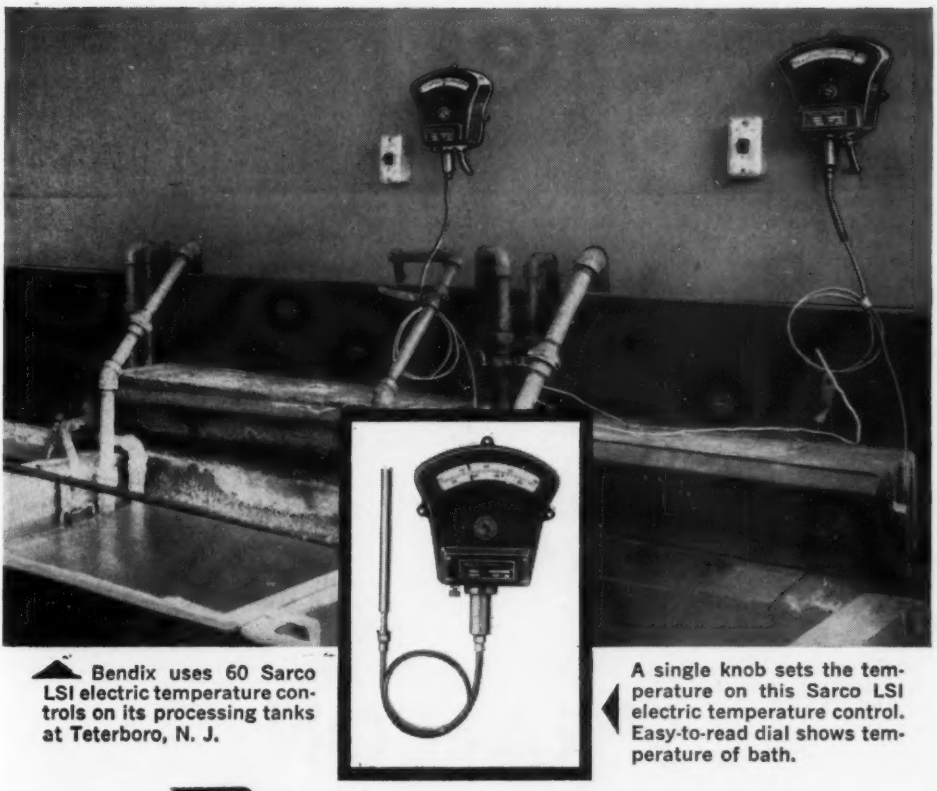
55. Bronze Powders
Color card shows 33 colors of bronze-like finishes that can be produced from stock Cres-Lite bronze powders. Crescent Bronze Powder Co., 118 W. Illinois St., Chicago 10, Ill.

56. Hot-Dip Paint Process
Information on painting process in which part to be painted is preheated and dipped into paint formulated with chlorinated solvent. Paint is heated to 160 deg. F. As part leaves dip tank, paint dries immediately by fast solvent evaporation. David-Ludwig Co., 14290 Goddard Ave., Detroit 12, Mich.

57. Design Data for Lateral Tank Ventilation
Bulletin dt-7 is an engineering manual showing systems for lateral tank ventilation. Includes engineering drawings and tables that aid in engineering and installing such systems. DeBothezat Fans Div., American Machine and Metals, Inc., East Moline, Ill.

58. Degreasers
A four-page folder on VS-800 Series vapor-spray degreasers describes a line of open-top degreasers. Lists important features, includes diagrams to show working parts. Detrex Chemical Industries, Inc., Box 501, Detroit 32, Mich.

59. Titanium Anodizing Cylinder
Data sheet describes and illustrates an all-titanium anodizing cylinder that is useful in bulk processing of bolts, rivets, screws. Requires no stripping, resists acids. Detroit Industrial Process Co., 9301 French Rd., Detroit 13, Mich.



Bendix uses 60 Sarco LSI electric temperature controls on its processing tanks at Teterboro, N. J.

A single knob sets the temperature on this Sarco LSI electric temperature control. Easy-to-read dial shows temperature of bath.

How *Bendix* controls temperatures in 60 processing tanks with Sarco Electric Indicating Regulators

In the completely modernized plating department of Eclipse-Pioneer Division of Bendix Aviation Corporation at Teterboro, N. J., temperature in all processing tanks is controlled with Sarco LSI Regulators. This standardization has paid off in accuracy, dependability, and economy. Among the varied processes for which LSI's are now used are Black Dye, Dichromate Seal, Parker Lubrite, Hot Water Rinse, Electro Cleaner, Passivate, Black Oxide Copper and Chromium Plating.

You can get a complete Sarco system for as little as $130 a tank

This Sarco LSI makes it unnecessary to rely on erratic manual temperature control. Further, the low initial cost of the LSI and its almost negligible maintenance cost mean completely dependable temperature control with real economy. Call your nearest Sarco representative, or write for details on Sarco LSI temperature controls and your copy of Sarco Case History No. 174. 5927-A

SARCO
COMPANY, INC.

635 Madison Ave., New York 22, N. Y.

For more data circle 386 on Postpaid Card

Circle numbers on postpaid card opposite page 128 to obtain free literature

60. Automatic Spray Machines
Form No. 1-8010, a twelve-page folder on DeVilbiss automatic spray-finishing machines. Tells how to select basic machine type, describes features of transverse design units, straight-line transverse machines, horizontal-contour transverse machines, vertical straightline transverse machines. The DeVilbiss Co., Toledo 1, O.

61. Cold Cleaner
Literature describes the advantages of using Chlorothene solvent for cold degreasing and cleaning operations. Dow Chemical Co., Midland, Mich.

62. Vapor Degreasing
"Vapor Degreasing with Diamond Perchlorethylene" is the title of a 12-page technical bulletin that presents data on 13 major advantages of vapor degreasing prior to painting, plating and other finishing operations. Includes sections on essentials of vapor degreasing equipment, methods of scheduling vapor-degreaser cleanouts and solvent distillation, suggested operating procedures. Diamond Alkali Co., Chlorinated Products Div., 300 Union Commerce Bldg., Cleveland 14, Ohio.

63. Rectifier Conversion Kit
Catalog on silicon conversion kits for plating rectifiers. Dresser Electric Co., 2705 Wight St., Detroit 7, Michigan.

64. Drying and Baking Booklet
Data Booklet D117 shows how heating units and ovens of all sizes and shapes can be built at low cost from prefabricated interlocking infrared sections. Dry Clime Lamp Corp., Greensburg, Indiana.

65. Water Wash Spray Booth Compound
Information on Diff. LX Klarifiant, a spray booth compound that is said to prevent clogged nozzles, booth rusting, foam, and curtain "build-up." DuBois Co., Inc., 1120 W. Front St., Cincinnati 3, Ohio.

66. Electropolishing Stainless Steel
Literature on baths for electropolishing stainless steel includes operating instructions for two of these baths. Electro-Glo Co., 621 S. Kolmar Ave., Chicago 24, Ill.

67. Metal Strippers
Enstrip Selection Chart gives complete information about solutions that will remove deposits of nickel, copper, brass, silver, zinc and cadmium plate without attacking steel basis metal. Also includes data on products for stripping nickel and copper from brass; solder, tin and lead from steel and copper-base alloys; copper, nickel and chromium from zinc-base die castings; and others. Enthone, Inc., Subsidiary of American Smelting and Refining Co., 442 Elm St., New Haven, Conn.

SPRA-CON
COMPLETE FINISHING SYSTEMS

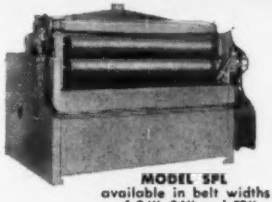
POWER SPRAY WASHERS
DRYING OVENS
PAINT BAKING OVENS
FLOW COAT MACHINES
AIR REPLACEMENT SYSTEMS
CONVEYORS

SPRA-CON ROTARY ARM WASHERS AND PAINT APPLICATORS

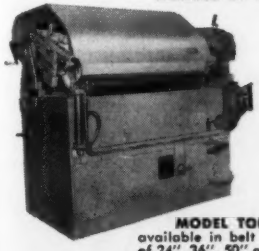
SEND FOR FREE CATALOG

the SPRA-CON COMPANY
3600 ELSTON AVE. • CHICAGO 18, ILLINOIS
For more data circle 387 on Postpaid Card

"Only machine capable of handling our rugged and precision sanding requirements on large aluminum panels"*



MODEL SPL
available in belt widths of 24", 36" and 50"
Sanding action is for underside of work.



MODEL TOP
available in belt widths of 24", 36", 50" and 54"
Sanding action is overhead.

"We were faced with the problem of sanding 1000 vertical aluminum panels, 28'x24"x3/16" for the exterior of the new U. S. Air Force Academy buildings. These panels required finishing to a uniform and precision surface specification. Before we purchased the Timesaver Model TOP-50, we thoroughly investigated the market for sanding machines of this type. The Timesaver "Speedbelt" was the only unit which possessed the durability, accuracy and rugged construction necessary for our requirements."

The Cupples Products Corporation's experience is typical of Timesaver "Speedbelt" Installations throughout the country . . . where performance and need to achieve production and cut costs is important. They can do all flat metal surface finishing, polishing and sanding formerly assigned to other methods . . . and do them better. What's more, savings made in labor, materials and maintenance soon pay for their low initial cost.

Investigate the advantages of Timesaver Sanders for your plant, write for literature and information today.

TIMESAVER SANDERS

P.O. Box 7446, Robbinsdale Station • Minneapolis 22, Minn.

Pioneers in Wide Belt Sanding for the Woodworking Industry

For more data circle 388 on Postpaid Card

Circle numbers on postpaid card opposite page 128 to obtain free literature

68. Copper Anode
Information on the new Asarco-Max copper anode. Federated Metals Div., American Smelting & Refining Co., 120 Broadway, New York 5, N. Y.

69. Masks for Precision Painting
A 20-page book describes spray masks for use in spray decorating plastics, stampings and die castings that have depressed or raised detail. Wm. M. Fiore, Inc., 269 41st St., Brooklyn 32, N. Y.

70. Flexible Contact Wheels
Catalog No. 12 describes Formax flexible contact wheels for grinding, polishing, sanding and finishing with coated abrasive belts. These wheels are said to produce sharper, faster cutting action plus finer and smoother work surface. Formax Manufacturing Corp., Detroit 7, Mich.

71. Portable Infrared Units
Folio 55-101 describes and illustrates several types and sizes of portable infrared drying units for use in drying, baking and so on. Fostoria Pressed Steel Corp., Fostoria, Ohio.

72. Prevent Wear on Buffing Fixtures
General information folder describes company's service of coating buffing fixtures with a protective coating that increases wear resistance. Fusion Metal Coating Co., 25493 W. Eight Mile Rd., Detroit 40, Mich.

TRUE BRITE BRASS SOLUTION

A foolproof solution which has been in use for over 6 years in light and heavy production.

- Ready To Use—Just Add Water
- No Variance in Color
- Trouble-Free—Little Supervision Needed
- Low Cost—Additions only once a day

Available in a variety of colors. Will match your sample.

Write for technical bulletin and prices.

TRUE BRITE CHEMICAL PRODUCTS CO.
Box 31, Oakville, Conn.

For more data circle 389 on Postpaid Card

73. Laboratory Equipment Catalog
Catalog lists laboratory instruments, tells what each will do. Includes instruments for measuring color, reflectance, gloss, haze; viscosity, consistency, oil-testing; heating and cooling baths; humidity and salt spray cabinets; film applicators; film-thickness gages; tensile-strength gages; instruments for measuring drying time, hardness, flexibility, adhesion, washability; mills, mixers, stirrers; centrifuges; lab ovens; thermometers, hygrometers; drum tools, drum warmers, many others. Gardner Laboratory, Inc., Bethesda 14, Md.

74. Roller Coating Equipment
Information on Gasway equipment for roller coat finishing. Gasway Corporation. 6459 N. Ravenswood Ave., Chicago 16, Illinois.

75. Finishing Systems
Twelve pages on the company's line of ovens, furnaces, air-supply systems, mechanical handling systems, spray booths, dust collectors and complete finishing systems. Granco, Inc., 317 — 32nd St., S.W., Grand Rapids 8, Mich.

76. Batch-Type Ovens
Specifications and information on walk-in batch-type ovens. Grieve-Hendry Co., Inc., 1414 W. Carroll Ave., Chicago 7, Illinois.

77. Patented Buff
Information on a buff with a patented mounting that maintains a cutting angle of 45 degrees, for faster, smoother cutting with less pressure. Guaranteed Buff Co., Inc., 20 Vandam St., New York 13, New York.

78. Abrasive Belt Polishing Machines
Bulletin 337-T describes several models of abrasive belt grinders, buffers, polishers, tells what each machine will do, its advantages, general specifications. Hammond Machinery Builders, Inc., 1622 Douglas Ave., Kalamazoo, Mich.

79. Impurities in Electroplating Solutions
Technical manual contains a series of reprints which describe the types, sources and effects of impurities in plating solutions, tells how to purify contaminated solutions. Hanson-Van Winkle-Munning Co., Matawan, N.J.

80. Duplex Nickel
Literature on the Harshaw Perflow-Perglow Duplex nickel plating process. Harshaw Chemical Co., 1945 E. 97th St., Cleveland 6, Ohio.

81. Metal-Treatment Materials
New folder describes company's line of black oxide finishes, chromate coatings, cleaners, oils and strippers. Heatbath Corp., Springfield 1, Mass.

"JOB SHOP" finishing with KIRK & BLUM oven

A job shop never knows what product it may process tomorrow. Yet, designing an oven for that type operation was no mystery for KIRK & BLUM'S experienced engineers.

The resultant "A" type oven shown below accommodates the wide variety of products finished. To allow space for storage and packing below, the oven is mounted above the floor on structural steel supports.

Consult KIRK & BLUM for your oven needs. There's no obligation. Write for "Ovens for Industry" catalog, just released.

The Kirk & Blum Manufacturing Co.
3116 Forrer Street, Cincinnati 9, Ohio

Gas-fired, re-circulating automatically controlled, fully protected 3 pass oven.

For more data circle 390 on Postpaid Card

Circle numbers on postpaid card opposite page 128 to obtain free literature

82. Used Polishing Equipment
Information on used buffing and polishing machines. J. Holland & Sons, Inc., 487 Keap St., Brooklyn 11, N. Y.

83. Trichlorethylene
Form 1184-B gives specifications, description and uses for Nialk Trichlorethylene, metal degreasing grade. This solvent is useful in general degreasing operations, can also be used in cleaning of rocket and missile components. Hooker Chemical Corporation, Niagara Falls, N.Y.

84. Cyanide Copper Plating Process
Data on Ro-Bright, a bright cyanide copper plating process said to produce deposits with excellent brightness in a minimum time. R. O. Hull & Co., Inc., 1304 Parsons Ct., Rocky River 16, Ohio.

85. Settling Finishing Wastes
Bulletin describes IFA-313, a coagulating aid used to assist in the coagulation and settling of metal finishing wastes. Illinois Water Treatment Co., 840 Cedar St., Rockford, Ill.

86. Wood Tanks
Information on wood tanks for pickling and plating. Kalamazoo Tank & Silo Co., 1573 Harrison St., Kalamazoo, Mich.

87. Ovens for Industry
"Ovens for Industry" catalog describes and illustrates many different types and sizes of industrial ovens. Kirk & Blum Mfg. Co., 3116 Forrer St., Cincinnati 9, Ohio.

88. Tumbling Machines
Literature describes and illustrates various tumbling machines. H. W. Kramer Co., 120-30 Jamaica Ave., Richmond Hill 18, New York.

89. Plating Course
Information on a correspondence course in electroplating. Joseph B. Kushner Electroplating School, P. O. Box 2066, Station "D," Evansville 14, Indiana.

90. Baking and Drying Equipment
Catalog No. 560 describes and illustrates various types of baking and drying equipment. The Lanly Co., 2800 Euclid Ave., Cleveland 15, Ohio.

91. Multiple-Process-Cycle Plating Machine
Information on the Select-O-Matic automatic plating machine, which allows the operator to select any one of several plating cycles when he loads the machine, merely by turning a dial. Lasalco, Inc., 2820 LaSalle St., St. Louis 4, Mo.

FREE... from ABBOTT

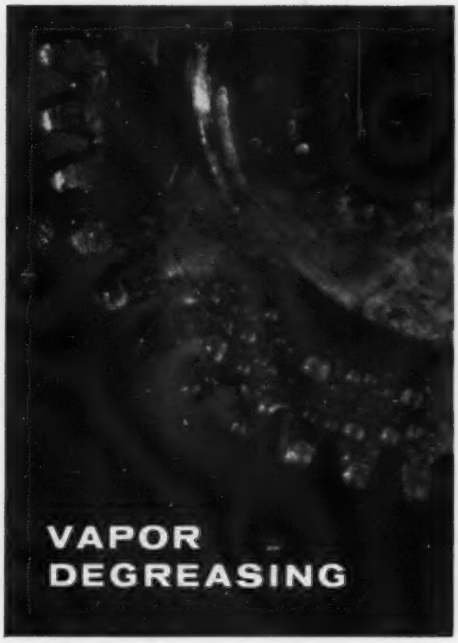
the vial that shows you why we are your best source for better burnishing media

As shown here, Abbott offers a variety of high quality steel burnishing shapes in several sizes – each shape having a special job to do. Each one is designed to make effective contact on metal stampings and castings of any shape and size. Available in balls, pins, cones, ovalballs, ballcones, diagonals, and pebs, Abbott shapes range in diameter from 1/16" to 3/4". Request the vial that shows our variety; descriptive literature also is available on request.

ABBOTT — a HALF century of WHOLE service to industry — 1909 1959

THE ABBOTT BALL COMPANY
14 RAILROAD AVE. HARTFORD 10, CONN.

For more data circle 391 on Postpaid Card



Now, one grade of trichlor does both

Whether you clean a rocket or degrease a gear, you can now use Nialk® metal degreasing grade trichlorethylene as your cleaning agent.

This grade of Nialk meets rigid government and industry standards for solvents used to clean rocket and missile components. It leaves little or no residue when it evaporates. At the same time, it keeps the above-average chemical stability needed for vapor degreasing.

The savings in this twofold use of one grade of trichlor can be readily seen. Now you can:

Cut your inventory and make your buying easier.

Avoid errors. No one can pick the wrong drum when you're buying just one grade of trichlor.

Make your materials handling easier.

Help end your disposal problems. Usually you can use the Nialk trichlor from your flushing operation in your vapor degreasing operation without distilling, or the solvent can be recovered and used again and again.

STABILITY WITH psp

You get **psp** too, when you ask for Nialk trichlorethylene. **psp** is "**p**ermanent **s**taying **p**ower," the ability of the stabilizer to keep from wearing out.

You can get more information on this metal degreasing grade of Nialk trichlor. Just write for specifications and data.

HOOKER CHEMICAL CORPORATION

1405 UNION STREET, NIAGARA FALLS, N. Y.

Sales Offices: Chicago Detroit Los Angeles New York
Niagara Falls Philadelphia Tacoma Worcester, Mass.
In Canada: Hooker Chemicals Limited, North Vancouver, B. C.

HOOKER CHEMICALS PLASTICS

For more data circle 392 on Postpaid Card

Circle numbers on postpaid card opposite page 128 to obtain free literature

92. Electrocleaners
Information on Magnus electrocleaning products. Magnus Chemical Co., Inc., 208 South Ave., Garwood, N. J.

93. Compounds for Barrel Processing
"Permag Compounds for Barrel Processing" is the title of a manual that gives basic information on barrel processing compounds, specific data on deburring and roughing, coloring and burnishing, descaling, rust prevention, neutralizing, other topics. Includes methods for calculating volumes of barrels, notes from case histories. Magnuson Products Corp., 50 Court St., Brooklyn 1, N. Y.

94. Tack Cloth
Information on specially treated cloths that are used for removing dust and lint just prior to paint finishing operations. Mard Products, Inc., 1020 E. Ten Mile Rd., Hazel Park, Mich.

95. Pearlescent Finishes
Information on Nacromer YNC, an additive that is used in standard organic finishes to produce a pearlescent finish. The Mearl Corporation, 124 E. 40th St., New York 16, N. Y.

The Latest
DERMITRON
NON-DESTRUCTIVE THICKNESS TESTER!

Measures coatings rapidly and accurately.

Instantly measures the thickness of metallic and non-metallic coatings and films.

Write for complete information.

UNIT PROCESS ASSEMBLIES, INC.
UPA
61 East Fourth Street • New York 3, N. Y.

Visit Us at Booth 248 Industrial Finishing Exposition
For more data circle 393 on Postpaid Card

96. Degreasers
Catalog describes laboratory, two-dip, three-dip, vapor-spray, barrel-type automatic, and semi-automatic degreasers. Mechanical Process Co., Inc., 392 Valley St., South Orange, N. J.

97. Bronze Plating
A four-page folder on M & T copper-tin bronze plate tells how this plate can be used as an undercoat for chromium or as a final decorative finish. Includes information on control of solution, throwing power, plating speed, other factors. Metal & Thermit Corporation, Rahway, N.J.

98. Nylon Web Finishing Material
Information on "Scotch-Brite" finishing material, which is made by impregnating a tough nylon web with microscopic working particles. Scotch-Brite sections can be mounted on lathes, used on conveyorized machines, mounted on flexible shaft, or used as a pad, for hand work. The manufacturer recommends this product for use in metal blending, cleaning, finishing, and for correction of surface imperfections. Gives a consistent finish from beginning to end of a run. Minnesota Mining and Manufacturing Co., Dept. FH-59, 900 Bush Ave., St. Paul 6, Minnesota.

99. Paint Mixer
Data sheet on Miracle paint rejuvenators, which mix paint without removing the lid from the container, by shaking the can vigorously. Miracle Paint Rejuvenator Co., 500 N. Robert St., St. Paul 1, Minnesota.

100. Drum-Handling Tools
Literature on a line of drum-handling tools and equipment: drum upenders, drum wrenches, carts and so on. Morse Mfg. Co., Inc., 762 W. Manlius St., E. Syracuse, N. Y.

101. Metal Preparation Products
Literature describes products for cleaning, rust removal, phosphatizing, conversion coating and cold forming. Neilson Chemical Co., 2302 Gainsboro, Detroit 20, Ferndale, Mich.

102. Paint Spray Booth Water Additive
Case-history reports on Mogul M-55, a cleaner that is used to make cleaning and maintenance of water-wash spray booths easier. The report stresses the product's ease of application, tells how users have saved money and increased efficiency. The North American Mogul Products Co., Standard Bldg., Cleveland 13, Ohio.

103. Aluminum Cleaner
Complete details on Alkalume AC No. 1, a recently introduced cleaner formulated for cleaning aluminum prior to plating, anodizing, etching. Northwest Chemical Co., 9310 Roselawn, Detroit 4, Mich.

GET *ALL* THE ANSWERS
TO *YOUR* FINISHING PROBLEMS

at the
FIFTH INDUSTRIAL FINISHING EXPOSITION!

(Held in conjunction with the
GOLDEN JUBILEE CONVENTION
of the
AMERICAN ELECTROPLATERS' SOCIETY)

The finishing experts will all be under one roof next June. In Detroit, at the Detroit Artillery Armory, from June 15 to 19, at the Fifth Industrial Finishing Exposition!

Take your problems to them. Get expert help . . . at the largest display of finishing equipment, materials and processes ever assembled under one roof.

Make a list of your plating problems. Take it to Detroit with you. See the men who man the booths. The experts with professional, up-to-date help for you. They'll be there to demonstrate the right way to solve your problems.

If you want more information on the Fifth Industrial Finishing Exposition *now*, ask the exposition chairman: • • • • • • • • • •

HOWARD J. McALEER
3171 BELLEVUE AVE.
DETROIT 7, MICHIGAN

104. Barrel Finishing Machined Parts
A report on methods of barrel finishing machined parts such as aircraft gears tells how barrel finishing improves surface finish and fatigue strength, removes burrs, forms uniform radii and reduces production costs. Norton Co., Worcester 6, Mass.

105. Helps Aluminum Paint Adherence
Folder describes Oakite Chromicoat process for applying a conversion coating on aluminum surfaces. This coating improves resistance to corrosion and paint adherence. Includes details on how to apply. Oakite Products, Inc., 20 Rector St., New York 6, N.Y.

106. Bonderites for Aluminum
A four-page folder on Bonderite coatings for aluminum describes Golden Bonderite and Green Bonderite, has data on methods of application, salt-spray tests. Parker Rust Proof Co., 2172 E. Milwaukee Ave., Detroit 11, Mich.

107. Protect Concrete from Corrosives
Data sheet CP-630 describes Penntrowel products for protecting concrete, cement and other surfaces from corrosives. Includes data on three Penntrowel fillers: Penntrowel Regular, Penntrowel Carbon and Penntrowel Floor Surfacing. Each of these products have specialized properties. The folder tells how to apply. Corrosion Engineering Products Dept., Pennsalt Chemicals Corp., Natrona, Pa.

For more data circle 394 on Postpaid Card

108. Glove-Selection Guide
Handy pocket folder offers a comprehensive guide to selecting the correct glove for a particular industrial application. Includes detailed chemical-performance ratings, outlining tests made with various reagents and solvents. Pioneer Rubber Co., Inc., 285 Tiffin Rd., Willard, Ohio.

109. Thermosetting Acrylic Enamel
Brochure contains information on Duracron thermosetting acrylic enamel, tells how this coating can reduce manufacturing costs. Pittsburgh Plate Glass Co., Industrial Finishes Div., 1 Gateway Center, Pittsburgh, Pa.

110. Clear Lacquers
Data on clear lacquers especially formulated to be used in protecting highly polished metals and those that tarnish easily. Randolph Products Co., Carlstadt, New Jersey.

111. Electrostatic Hand Gun
A 4-page folder tells how the new Ransburg hand-held electrostatic spray gun works, what it will do. Includes photos and diagrams of the new gun. Ransburg Electro-Coating Corp., P. O. Box 23122, Indianapolis 23, Indiana.

112. Automatic Current Density Controls
Information on rectifiers with automatic controls for current density. Rectifier automatically maintains a constant current density per square foot of work. Rapid Electric Co., 2881 Middletown Rd., New York 61, N.Y.

113. Coatings for Steel
Information on the company's line of organic coatings for steel. These products are said to offer greater resistance to temperature, excellent color control, greater tensile strength. Reynolds Chemical Products Co., Whitmore Lake, Mich.

114. Oven Guide
Catalog No. 122 serves as a guide for selecting the right oven to bake, dry and cure paint, varnish, lacquer and enamels. W. S. Rockwell, 2909 Eliot St., Fairfield, Conn.

115. Temperature Control
Bulletin 1025-B describes temperature controllers that hold solutions at pre-set temperatures automatically. Sarco Co., Inc., 635 Madison Ave., New York 22, New York.

116. Acid Copper Plate
Bulletin AC-4 is a technical report on the CuSol Acid Copper Plating Process, which is said to produce tree-free heavy deposits. Sel-Rex Corporation, 75 River Rd., Nutley 10, N. J.

117. Filter Pump Units
Bulletin 202. Data on corrosion-proof pumps and filter units for filtering corrosive plating solutions. Includes information on construction features, solutions that can be filtered, rate of filtration, operation, back-washing and reversal switch. Sethco Manufacturing Co., 2292 Babylon Turnpike, Merrick, L. I., N. Y.

118. Tumbling Media
Information on preformed tumbling media and abrasive products. Over 200 sizes and bonds available. Fortune Industries, Inc., 11770 Dexter Rd., Chelsea, Mich.

119. Solvents
Information on acetates, alcohols, aliphatic hydrocarbons, alkanolamines, aromatic solvents, chlorinated hydrocarbons, glycols and polyglycols, glycol ether, other solvents. The Solvents and Chemicals Group, 2540 West Flournoy St., Chicago 12, Ill.

120. Epoxy Coating
Information on a pure-bake epoxy coating that cures at 325 deg. F. in five minutes. Specialty Coatings Co., 3501 W. Jarvis, Skokie, Ill.

121. Finishing Systems
A 36-page book describes and illustrates complete finishing systems and components such as washers, dryers, bake ovens, flow coat systems, dip-painting systems, spray painting systems, others. Includes diagrams of several systems, comparison of operating costs for Spra-Con systems vs. other types. Also has a page of useful engineering formulas and constants. The Spra-Con Company, 3600 Elston Ave., Chicago 18, Ill.

122. Spray Nozzle Catalog
Catalog No. 24 is a 48-page booklet containing complete data on various spray nozzles and accessories. Nozzles are listed in tabular form and complete information is given on pipe sizes, external dimensions, orifice diameters, capacities and spray angles. Spraying Systems Co., 3229 Randolph St., Bellwood, Ill.

123. Aerosol Finishes
Booklet entitled "Aerosols Unlimited" describes aerosol-packaged paints. Sprayon Products, Inc., 2077 E. 65th St., Cleveland 3, Ohio.

124. Polishing and Buffing Compositions
A 15-page booklet on buffing and polishing compositions includes data on how to test compositions in the plant, has tables which show proper compounds to use for various jobs; a peripheral speed chart; detailed descriptions of various types of compositions. Frederic B. Stevens, Inc., Detroit 16, Mich.

Use the finish proved best by performance

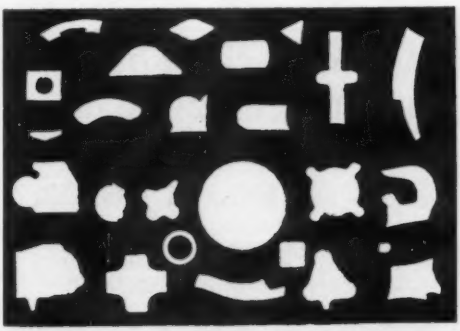
Randolph

LACQUERS • ENAMELS
DOPES • THINNERS
CLEAR METAL FINISHES
COLORED LACQUERS
CLEAR S.G. FOR METAL
TEXTURE ENAMELS
CHEMICAL COATINGS
AIRCRAFT FINISHES

Our reputation is built on
EXPERIENCE—RESEARCH—SERVICE

RANDOLPH PRODUCTS CO.
CARLSTADT, N. J.

For more data circle 395 on Postpaid Card



Pre-Cut Masks Speed Finishing

Brady Pre-Cut Masks are self-sticking — go on fast and accurately. Protect from finishing to inspection. Hundreds of shapes and sizes in stock, for paint spraying, baking, tumbling, etc. Specials made to order. Fast delivery. Distributors in 150 cities.

Write for free samples and Bulletin 160-C.

W. H. Brady Co.

746 W. Glendale Ave. • Milwaukee 9, Wis.

For more data circle 396 on Postpaid Card

Circle numbers on postpaid card opposite page 128 to obtain free literature

125. Belt-Driven Barrel Plating Units
A four-page folder describes and illustrates Stutz belt-driven plating cylinders, includes data on advantageous features. The Stutz Co., 4410 W. Carroll Ave., Chicago 24, Ill.

126. Stripping Copper
A 10-page booklet describes Liquid Sulphur, tells exactly how to use this material for removing deposits of copper. Sulphur Products Co., Inc., 621 W. Pittsburgh St., Greensburg, Pa.

127. Rectifiers
A new 10-page catalog on selenium and silicon rectifier power units contains complete descriptions, data and specifications for three-phase units and special low-voltage units. Syntron Co., 452 Lexington Ave., Homer City, Pa.

128. Acid Bright Gold
Technical report on Orosene 999, a 24K acid bright gold electroplating bath. Formula, preparation, operating data, replenishment instructions, list of advantageous features. Technic, Inc., 39 Snow St., Providence 1, R. I.

129. Etch Primer
Data on Gripalloy, an etch primer available in black and colors. Used as primer or finish coat. Tenax, Newark 5, N. J.

QUALITY EQUIPMENT

PRICED RIGHT AND READY FOR IMMEDIATE SHIPMENT

BUFFING AND POLISHING EQUIPMENT

Hammond — Divine — U. S. Electric — Holland — Standard Electric — L'Hommedieu single speed and variable speed buffing and polishing machines. 1 to 20 HP.

Rotary Machines: Hammond — Acme — Packermatic.

Complete buffing systems for above machines, including hoods, cyclones, dust boxes, pipes, motors and blowers; various sizes.

Semi-automatic machines: Buffalo—Hammond Acme—Divine—Production.

ALL EQUIPMENT IN STOCK
INSPECTION INVITED

all quoted subject to prior sale.

J. HOLLAND & SONS, INC.
487 KEAP ST., B'KLYN, N. Y., STagg 2-2022

For more data circle 397 on Postpaid Card

130. Cob Grit for Blasting, Tumbling
Information on corn cob grits that are used as tumbling media and in blast cleaning. Ti-Co Industries, Inc., P. O. Box 185, Tipton, Indiana.

131. Belt Sanders
A 4-page folder describes Model TOP Timesaver "Speedbelt" Sander. It details the construction features of this unit, gives specifications for four models. Several applications are shown. Timesaver Sanders, P. O. Box 7446, Robbinsdale Station, Minneapolis 22, Minn.

132. Hammer Finish
Information on Tousey Hammercote, a hammer-type finish said to produce uniform patterns, hard, mar-proof films. Tousey Varnish Co., 520 W. 25th St., Chicago 16, Ill.

133. Temperature Regulators
Bulletin No. 1000 describes Trerice No. 90000 and 90400 self-operating temperature regulators, which require neither air nor electricity for operation. H. O. Trerice Co., 1427 W. Lafayette Blvd., Detroit 16, Mich.

134. Brass Plating Solution
Technical bulletin on True Brite brass solution, which is available in a variety of colors. True Brite Chemical Products Co., Box 31, Oakville, Conn.

135. Bright Nickel
Technical Bulletin No. NP-514 tells how to operate Udylite Bright Nickel Process No. 514. Includes complete data on functions of additives, temperature, pH, suggestions for avoiding troubles. The Udylite Corporation, Detroit 11, Mich.

136. Alkaline Derusting, Descaling
Bulletin PR-AD-1 describes the use of periodic reverse in alkaline derusting and descaling. Unit Process Assemblies, Inc., 61 E. Fourth St., New York 3, N. Y.

137. Copper Anodes
Information on "Phosphor-Brite" rolled copper anodes for acid copper plating baths. Univertical Foundry and Machine Co., 14841 Meyers Rd., Detroit 27, Mich.

138. Acid-Resistant Clothing
Detailed data on a complete line of acid and chemical resistant industrial apparel is contained in the 1958 Worklon Catalog. Worklon, Inc., 253 W. 28th St., New York 1, N. Y.

139. Barrel Finishing Compounds
Handy selector chart tells at a glance which barrel finishing compound to use for any barrel finishing application. Techline Div., Wheelabrator Corp., 2454 Avenue V, Vicksburg, Mich.

140. Pump for Corrosives

Eight-page catalog describes company's line of pumps, which are designed to handle corrosive solutions with trouble-free service. Available with various body and liner materials, designed so as to eliminate stuffing boxes and shaft seals. Vanton Pump and Equipment Corp., Hillside, N. J.

141. Cleaning and Finishing Products for Aircraft Industry

Booklet F2178 describes complete line of products for aircraft cleaning and maintenance: products for aluminum, magnesium and steel cleaning; spray booth maintenance; aluminum brightening; removing carbon; removing paint; and others. J. B. Ford Div., Wyandotte Chemicals Corp., Wyandotte, Mich.

Classified Advertising

FOR SALE

Production Tube and Bar Polisher Model A
Capacity ½ inch to 6 inch rounds
Direct Motor Drive, Power Feed, Belt size
6 by 168 in.
Excellent Condition.

LOWELL INDUSTRIES, INC.
2706 Summit St., Toledo, Ohio • RAndolph 6-2602

SOUTH FLORIDA TEST SERVICE, INC.

Testing—Inspection—Research—Engineers

Consultants and specialists in corrosion, weathering and sunlight testing.

4301 N. W. 7th St. • Miami 44, Florida

SALES ENGINEERS

Qualified to sell Metal Cleanng Equipment. Vapor Degreasers — Alkaline and Phosphate Washers — Agitating Washers—Ultrasonic Cleaning Equipment —Trichlorethylene and Perchlorethylene Degreasing Solvents. Complete training program at factory but only men with experience or knowledge in this field or related fields need apply. Circo Equipment Co., 51 Terminal Ave., Clark, N J.

TECHNICAL SALES & SERVICE

Position open in Midwest for man, preferably experienced, in calling on job and captive electroplating plants for one of the world's leading companies. Please write giving full resume of experience, age and marital status. Our fieldmen know of this advertisement. Box No. 53, c/o Products Finishing, 431 Main St., Cincinnati 2, Ohio.

CHEMIST

SITUATION OPEN—Chemist for Plating Laboratory in large finishing Company, Newark, New Jersey. Experience in analysis and control. Reply submitting full resume of experience to Box No. 52, c/o Products Finishing, 431 Main Street, Cincinnati 2, Ohio.

WANTED—SALESMEN to represent Pioneer Manufacturer of complete line of Spray Equipment. Must know how to work with jobbers and consumers. Established accounts. Good salary, commissions, fringe benefits. Car furnished. Opportunity for life-time career. Territories open—New England, out of Boston and Ohio, out of Cleveland. Write complete resume for interview. Box No. 55, c/o PRODUCTS FINISHING, 431 Main Street, Cincinnati 2, Ohio.

AGENTS WANTED

Plastic Division of AAA Corporation revising national sales program. Areas open for established commission representatives covering plating supply and maintenance coatings distributors. Provide details of present operation to: Box No. 54, c/o Products Finishing, 431 Main Street, Cincinnati, Ohio.

ATTENTION USED BUFF DEALERS

Reducers available for big hole buffs, reducing 2½", 2¼", 2", and 1¾" to 1¼".

Write for samples and prices.

S. J. WILLIAMS
2 N. Emerson • Mt. Prospect, Ill.
Tel.: CLearbrook 3-8325

DON'T BUY ANY ONE OF THESE ITEMS

UNTIL YOU GET OUR LOW PRICES! WE CARRY A LARGE STOCK OF REBUILT USED FINISHING EQUIPMENT INCLUDING HAND OPERATED AND AUTOMATIC UNITS.

SPRAY BOOTHS	CONVEYORS	PHOSPHATIZING UNITS
MIXING TANKS	FANS	CENTRIFUGAL ENAMELERS
PAINT HEATERS	OVENS	DEGREASERS
PRESSURE TANKS	LIGHTS	PUMPS, MOTORS, ETC.

GENERAL EQUIPMENT & TRADING CO. • 2621 W. GRAND AVE., CHICAGO 12, ILL.

OPPORTUNITY SECTION

News of the Finishing Industry

- company news
- new positions
- new plants
- meetings

NEW PLANTS

New Quarters for Davies Texas Branch

Davies Supply & Manufacturing Co., St. Louis plating equipment and supply firm, has moved its Texas branch office to new quarters at 2547 Farrington St., Dallas.

The Davies branch will occupy 4,000 square feet of warehouse and office space. R. H. Heppel continues as Texas district manager.

Davies' New Dallas, Texas Branch Office

Esbec Barrel Finishing Corp. Moves to New Plant

Esbec Barrel Finishing Corp. recently moved to a new plant in Stamford, Conn.

All administrative, engineering, production and testing operations—previously divided between Meriden and Byram, Conn.—will now be consolidated at the new location: 190 Henry Street, Bldg. 16, Stamford, Conn.

The Esbec Finishing Division—providing custom barrel finishing services—will continue in Meriden, Conn.

Mahon Consolidates Western Operations, Builds New Plant

The R. C. Mahon Company has acquired three affiliated California corporations: Walter G. Mitchell Industries, Mitchell Steel Inc., and Mitchell Properties Inc., Torrance, Calif. Mahon will merge operations of the firms with its own operations in a new plant.

The new plant will be built on a 30-acre site in Torrance, Calif., about 12 miles south of Los Angeles.

Construction will start immediately and will include a two-story office and engineering unit, and a separate factory building of about 200,000 sq. ft.

Walter G. Mitchell, executive vice president of the western division, will continue operations in his present location during construction of the new plant. When readied early this fall, all Mitchell operations and employees will be shifted to the new site.

Besides Mitchell's current operations, which include the fabrication and erection of both welded and riveted structural steel, Mahon's initial activities will involve the expansion of its Building Products and Industrial Equipment Divisions. Metal roof decks, cellular floor and acoustical ceiling assemblies; insulated metal curtain walls, interior and fire-wall partitions, as well as paint finishing systems and related items are but a partial list of products that will be available to the western market.

Enthone's New Lab: Basic Research to Production-Problem Solving

A new laboratory recently opened by Enthone, Inc., a subsidiary of American Smelting and Refining Co., triples the company's research facilities and expands laboratory activities—from basic research to solving customer problems.

The new laboratory, in New Haven, Conn., is divided into three principal sections: the first floor is a pilot plant laboratory; the second floor is devoted to technical service, product evaluation and basic research; and the third to specialized research, library and conference room.

The new lab, under the direction of Dr. Walter R. Meyer, will continue a comprehensive program of basic research. Enthone also supports a num-

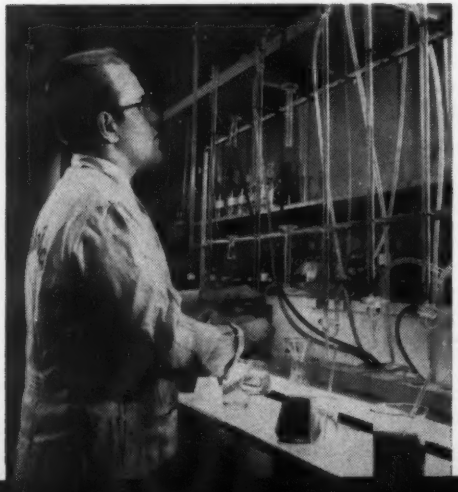
Fig. 2—Experimental formulations being tested. Customer in this case wanted a compound that would provide stain-free drying of barrel brass plated steel parts, protection from tarnish during storage, and rust proofing of underlying steel in areas where brass plating might be porous. Technician is checking formulations for water-shedding ability.

Fig. 1—Dr. Walter R. Meyer, president and technical director of Enthone (at blackboard) outlines problem presented by customer, collects ideas on basic chemistry involved in solving it. Problem then proceeds to lab, where technicians proceed to solution.

Fig. 3—Formulations that pass water-shedding test are checked for rust-inhibiting qualities by subjecting treated panel to heat and humidity in cabinet designed by Enthone.

Fig. 4 (right)—Pilot laboratory checks new formulation, using production conditions and samples of the customer's brass plated steel. Each of the 41 plating tanks in the lab has individual rectification and control. Many tests can be carried out at the same time.

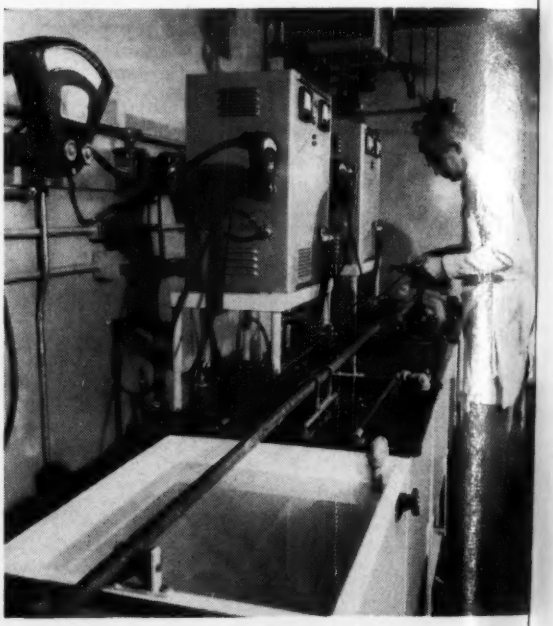
Fig. 5—Problem is solved as final check shows that new compound (now called Entek 45) is compatible with customer's plating solution. In the customer's plant, compound proved satisfactory, minimizing water spots, inhibiting corrosion, and preventing tarnish. New product is now part of Enthone's standard line of metal finishing chemicals. (Photos courtesy Enthone, Incorporated, subsidiary of American Smelting and Refining Company.)



ber of abstract research projects in various universities. The company's research program is also coordinated with the activities of the parent company's (Asarco) central research laboratories in Plainfield, N. J.

Researchers working in the new lab have equipment ranging from ultrasonic generators to portable rectifiers and special corrosion testing cabinets at their disposal to aid in solving problems associated with metal finishing.

The pilot laboratory provides facilities for duplicating production operations such as plating, cleaning, black-



ening, acid dipping, paint and metal stripping, alkaline derusting and descaling, degreasing, buffing, tumbling and rust and tarnish inhibition.

One of the most important phases of Enthone's research activities is helping to solve customer problems. By tailoring and testing chemicals for production use in customer's plants, Enthone helps its customers to save time that would otherwise be used in trial-and-

error methods of evaluating chemicals for specific applications.

Photos accompanying this article show how a typical customer problem is solved.

Techline Opens West Coast Laboratory, Warehouse

Techline Division of Wheelabrator Corp. recently opened a new warehouse and processing laboratory in Pasadena, California, at 2602 East Foothill Blvd.

Technical personnel on the staff of the new facility will process sample parts and engineer applications of Techline barrel finishing and wet blasting equipment. Contract finishing work from the Los Angeles area also will be done here.

Complete stocks of wet blasting and barrel finishing equipment and parts will be carried in the warehouse as will stocks of finishing supplies: media, compounds, abrasives and accessories.

Du Pont Opens New California Terminal for Trichlorethylene

The Du Pont Electrochemicals Department has established a new terminal and shipping point for trichlorethylene at San Pedro, Calif. The new shipping terminal will substantially reduce shipping time to customers in the Los Angeles and San Francisco areas, the company states.

The trichlorethylene is produced at Du Pont's Niagara Falls, N. Y., plant. It is shipped by barge to a Carteret, N. J., terminal and then reshipped by chemical tanker to San Pedro.

COMPANIES

Detrex Opens New Jersey Marine Terminal

Detrex Chemical Industries, Inc. has opened a Marine Terminal at Bayonne, N. J., to aid in distribution of Perm-A-Clor NA degreasing solvent. The terminal will have complete drumming and storage facilities as well as facilities for tank car and tank truck distribution of all grades of trichlorethylene, perchlorethylene and other hydrocarbon solvents.

Gov. Rockefeller To Be Key Speaker at Hooker Research Center Dedication

Governor Nelson A. Rockefeller will be the key speaker at formal ceremonies on Tuesday morning, June 2, when Hooker Chemical Corporation dedicates its new $3,800,000 Research Center on Grand Island, near Niagara Falls, N. Y.

Construction of the building was begun in 1957, and the facilities were virtually completed last January. It is now occupied by nearly 200 people. Hooker's corporate research and product development of chemicals and plastics is centralized at this location.

● Does your present tumbling media plug the slots? Pick the proper size and bond hardness you need. We have distributors throughout the U. S. and Canada. At present we manufacture over two hundred sizes and bonds. Tell us about your problem.

Preformed Tumbling Materials
Abrasive Products

FORTUNE INDUSTRIES, INC.
11770 DEXTER ROAD
CHELSEA, MICHIGAN
PHONE GReenwood 9-3621

For more data circle 398 on Postpaid Card

Acoustica Organizes Eastern and Western Divisions, Appoints Four Executives to New Positions

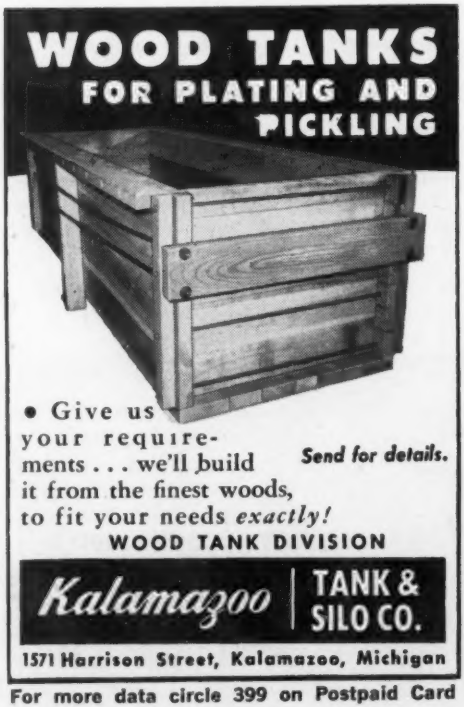
Acoustica Associates, Inc., Mineola, N. Y., manufacturer of ultrasonic equipment, has organized separate eastern and western divisions and has named four of its executives to new positions within the company.

Gerald M. Henriksen was named executive vice president in charge of all divisions.

Ralph Reynolds was appointed general manager of the eastern division and continues as vice president and director of the company.

Frank P. DeLuca was named general manager of the western division and elected a director of the company, continues as a vice president.

Stanley R. Rich was named vice president of Acoustica and continues as president of the General Ultrasonics Company, Hartford, Conn., a wholly-owned subsidiary of Acoustica.


WOOD TANKS
FOR PLATING AND PICKLING
• Give us your requirements . . . we'll build it from the finest woods, to fit your needs *exactly!*
Send for details.
WOOD TANK DIVISION
Kalamazoo TANK & SILO CO.
1571 Harrison Street, Kalamazoo, Michigan
For more data circle 399 on Postpaid Card

Sel-Rex Wins Award for Direct Mail Advertising

The New Jersey Chapter, National Industrial Advertisers Association, recently awarded the "first honors certificate for Direct Mail Program" to G. S. Corigliano, manager, advertising and sales-promotion, Sel-Rex Corporation, Nutley, N. J.

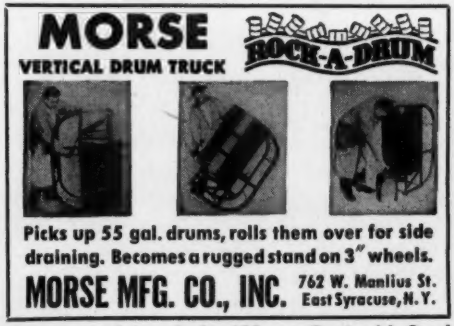
The campaign which won the award was based on a series of full-page advertisements entitled "Plating Progress," which were printed on a specially designed self-mailer and sent to people in the finishing industry.

"Plating Progress" was termed outstanding for its "off-beat" cartoon cover featuring Sel-Rex products. The self-mailer also featured a built-in reply card with a listing of available Sel-Rex technical publications.

Seymour Granted Patent on Copper Plating Additive

The Seymour Manufacturing Co., Seymour, Conn., has recently been awarded a patent on "CuSOL," a copper-plating agent, according to an announcement by George T. Hubbell, president of the concern. The patent number is 2,871,173.

An addition agent for copper plating solutions, CuSOL was developed expressly for use in electroforming molds, dies, and similar components. It permits smooth-surface copper-plating to any thickness. The resulting plate has a Rockwell hardness of 75 on the "F" scale.


MORSE
VERTICAL DRUM TRUCK
ROCK-A-DRUM
Picks up 55 gal. drums, rolls them over for side draining. Becomes a rugged stand on 3" wheels.
MORSE MFG. CO., INC.
762 W. Manlius St.
East Syracuse, N.Y.
For more data circle 400 on Postpaid Card

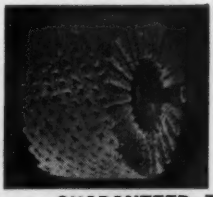
"Allied Swings into High" was the theme for Allied Research Products' recent annual sales meeting, which was held in the company's headquarters city, Baltimore, Maryland. Here is the entire Allied sales, service, promotion and development group together for the first time since the acquisition of the Wagner facilities and products last June.

CuSOL has excellent "throwing power"—enough, for example, to plate through holes in printed circuits.

The process is said to eliminate roughness, treeing, and nodular build-up, and produce a smooth, ductile, fine-grained deposit.

CuSOL can be used for up to 15 days, without replenishment, in any cold or warm acid copper bath. The bath will operate at any current density from five a.s.f. to 280 a.s.f. CuSOL may be added directly to either copper sulfate or copper fluoborate baths.

Buff Cooler, Faster with 45° Spoke Buffs



Patented mounting maintains best cutting angle of 45° for faster, smoother cutting with less pressure. Ventilation from 24 openings. We also mfg. all types of buffs.

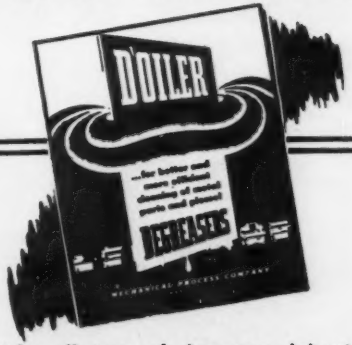
Write for folder.

GUARANTEED BUFF CO., INC.

20 Vandam St. New York 13, N. Y.

For more data circle 401 on Postpaid Card

Send for this folder on D'OILER DEGREASERS



Contains all types of degreasers: Laboratory, Two-Dip, Three-Dip, Vapor Spray, Barrel Type, Automatic, Semi-Automatic, Driers, Stills and Specials.
When the job needs a degreaser . . . there's a D'OILER for the job.

mechanical process co., inc.

392 VALLEY ST. • SOUTH ORANGE, N. J.

For more data circle 402 on Postpaid Card

Acme Manufacturing To Celebrate 50th Anniversary with Open House Program During Finishing Exposition

Acme Manufacturing Company and the American Electroplaters' Society will both celebrate fiftieth anniversaries during the week of June 15-19 at the Fifth Industrial Finishing Exposition, to be held in Detroit, Mich., at the Detroit Artillery Armory.

For its part of the fiftieth anniversary celebration, Acme Manufacturing will have an extensive open house program at its Detroit plant during this week.

Representing a total of approximately $300,000 worth of equipment, the display will include many types of polishing and buffing machines: semi-automatics, rotary machines, straight-line machines, universal and reciprocating types, a new line of small flat-stock finishing machines, a six-head tandem sheet polishing line, a two-head tandem coil polishing line and other special-purpose deburring, polishing and buffing equipment.

Metal & Thermit Reorganizes Organic Coatings Operations

Metal & Thermit Corporation, Rahway, N. J., recently announced the divisionalization of its organic coatings operations. The Coatings Division will be responsible for manufacturing, sales, research and merchandising of the entire organic coatings product line. Donald W. Oakley will be general manager.

To assist Mr. Oakley, three other appointments have been made; D. R. Meserve, sales manager; F. L. Scott, technical manager; and A. S. Pollock, plant manager.

A. S. Pollock

D. R. Meserve

F. L. Scott

Donald W. Oakley

TITANIUM

FOR

ANODIZING RACKS

•

BAR & STRIP

•

NUTS & BOLTS

•

STANDARD RACKS & CLIPS

•

CATALOG

•

DETROIT INDUSTRIAL PROCESS COMPANY

9301 FRENCH RD. • DETROIT 13, MICH.

WAlnut 1-3800

For more data circle 403 on Postpaid Card

Oakite Sales Conference

Forty-five technical service representatives of Oakite Products, Inc., met in New York recently for the company's 50th Anniversary Sales Conference.

The conference, third in a series of five such regional meetings, brought together the New England, Upstate New York, and Metropolitan New York divisions of the company.

Technical sessions presented during this conference included information on refinements in metal phosphatizing compounds; ultrasonic cleaning; and strippers for synthetic finishes.

New Mexican Subsidiary for Wyandotte

Wyandotte Chemicals Corporation recently formed a Mexican subsidiary company, Productos y Especialidades Quimicas, S.A. de C.V. It is jointly owned by Wyandotte and Mexican businessmen who are interested in, and acquainted with, the manufacture and sale of cleaning products.

The new company will have plant and office headquarters at Puebla, where the general line of Wyandotte's J. B. Ford Division products will be manufactured.

NEW POSITIONS

Binks Manufacturing Company made several new sales appointments: **Andrew Cummins** to sales manager of Cleveland territory; **C. J. Rood** to sales manager of Indiana territory; **Edward Cremer** to export manager and regional manager of New York and New England areas; **Robert Rorden** to branch manager of New York City territory; **Walter Denhoff** to new products specialist in the Industrial Division . . .

★ ★ ★

Harold F. Schulte appointed chief engineer of **Wheelabrator Corporation.**

★ ★ ★

Diamond Alkali Company's Research Department promoted **Dr. L. G. Utter** to assistant manager, Agricultural Chemicals, and **F. L. Dailey** to assistant manager, Industrial Chemicals.

★ ★ ★

L. R. Jeffrey, Jr., elected president and general manager of **National Ultrasonic Corporation,** Irvington, New Jersey.

INCREASE PRODUCTION! CUT COSTS!
Your paint is factory fresh ready for use when mixed in a
MIRACLE PAINT MIXER
5 GAL. MODEL
¼ Pt. to 55 Gal. Mixers Available
Write to:
MIRACLE PAINT REJUVENATOR CO.
500 NORTH ROBERT STREET ST. PAUL 1, MINNESOTA
For more data circle 404 on Postpaid Card

For Platers, Silversmiths, Jewelry Mfgrs., Makers of Watches, Clocks and Electronics and other metal finishers.
Supplied in straight or crimped brass, steel, nickel silver or stainless steel wire in sizes .0025 to .006 and in bristle, fibre or Nylon. Special sizes and shapes to order.
Write (Dep't. P) on your letterhead for catalog and price list.
DIXON & RIPPEL, INC. Box 116 Saugerties, N. Y.
ESTABLISHED 1856
For more data circle 405 on Postpaid Card

Peter Veit promoted to field service engineer by **Enthone, Inc.**, subsidiary, American Smelting and Refining Co.

Robert W. Huffman elected president and general manager of **Solventol Chemical Products, Inc.**

Peter Veit

Dr. C. C. Winding

A. H. Dammkoehler

Robert W. Huffman

Dr. Charles C. Winding, director of the School of Chemical and Metallurgical Engineering and Professor of Industrial Chemistry at Cornell University elected to board of directors, **Cowles Chemical Co.**

Arthur H. Dammkoehler appointed to Midwest Sales Staff, **Sel-Rex Corporation,** will headquarter in Chicago.

★ ★ ★

Clifford J. Grube named district manager for industrial sales of **General Plate Division, Metals & Controls Corporation . . .**

★ ★ ★

Atlas Powder Company appointed **Dr. George H. Scheffler** research associate in the chemical research department, Wilmington, Del. Dr. Scheffler will be responsible for research and program coordination on Darco activated carbons . . .

Richard B. Hoots appointed manager of Atlas Powder Company's activated carbons laboratory in Marshall, Texas . . .

A N O D E S

UNIVERTICAL
High Purity
•
Be Ahead of the Rest
GET THE BEST!
•
You Can Be Sure of
QUALITY
SERVICE
and VALUE

A N O D E S

UNIVERTICAL
FOUNDRY AND MACHINE COMPANY
14841 Meyers Rd., BRoadway 3-2000, Detroit 27, Mich.

For more data circle 406 on Postpaid Card

"WORTH THE MONEY"

"I think your course is excellent and well worth the money. I have never before run across so much practical information," writes distaff plater Evelyn Smith of Sacramento. Whether you're a distaff plater or the usual kind, you'll find ELECTROPLATING KNOW HOW training well worth your money! Write Dr. Joseph B. Kushner, Electroplating School, Box 2066p, Evansville 14, Indiana.

For more data circle 407 on Postpaid Card

Stanley E. Beauregard joined sales engineering staff of **R. O. Hull & Co., Inc.**, will work from company's Detroit office . . .

★ ★ ★

Schaffner Manufacturing Co. appointed **Norman McAndrew** factory representative for the Detroit, Michigan, area.

★ ★ ★

Federated Metals Division of American Smelting and Refining Company has named **L. D. Alpert** general manager of its Whiting, Indiana, plant; **P. H. Jackson** general manager of the Eastern Department; **G. F. Norman** vice president and general manager of **Federated Metals of Canada, Ltd.**; and **H. Trihey** manager of the Montreal plant of Federated Canada.

L. D. Alpert

P. H. Jackson

S. E. Beauregard

Norman McAndrew

Maury W. Feldstein

Carmen Pedalino

Carmen J. Pedalino has joined engineering staff of Equipment Department, **Enthone, Inc.**

★ ★ ★

Maury W. Feldstein appointed industrial representative for Delaware Valley area by **Tenax Finishing Products Co.**

Telephone collect for free brochure on

OXIDIZING COPPER, SILVER, BRASS, BRONZE

with

McKeon's "Liquid Sulphur"

Processes described in detail.

Sulphur Products Co., Inc.

McKeon Bldg., 621 W. Pittsburgh St., Greensburg, Pa.

For more data circle 408 on Postpaid Card

INDUSTRIAL ABRASIVE COB PRODUCTS

- **COB GRITS (Blasting)**
- **COB FLOUR (Foundry)**
- **COB MEAL (Tumbling)**

For Plastics and Metals Finishing

TI-CO INDUSTRIES, INC.

P. O. BOX 185 • TIPTON, INDIANA

Phone or Telegraph: FEderal 2-5942, Elwood, Indiana

For more data circle 409 on Postpaid Card

Perry C. Burnham

Frank H. Dayton

Frank H. Dayton promoted to Dayton, Ohio sales office of **Hanson-Van Winkle-Munning Co.** after completion of company's two-year sales training program . . .

★ ★ ★

Perry C. Burnham appointed district manager of the **J. C. Miller District, Hanson-Van Winkle-Munning Co.**, Grand Rapids, Mich.

"GRIPALLOY"

. . . Attractive satin sheen ETCHING PRIMER in black and colors . . . Often used as finish coat . . . Air dries in minutes . . .
. . . Amazing tight adhesion to 25 different metals as reported by a large electrical manufacturer.
. . . Excellent resistance to Salt Spray, Gasoline, and Solvents . . .

TENAX, Newark, N. J.
Lacquers—Enamels
Synthetics—Vinyls

For more data circle 410 on Postpaid Card

TAKE THE GUESSWORK OUT OF PAINT TESTING

RESEARCH
DESIGNERS
MAKERS
of Paint Testing Instruments and Equipment.
WRITE FOR LARGE CATALOG

GARDNER LABORATORY INC.
P. O. BOX 5728-PF • BETHESDA 14, MD.

For more data circle 411 on Postpaid Card

Jerry D. Hix appointed metallurgical product sales manager for **Chemical and Metallurgical Div., Sylvania Electric Products, Inc.** . . .

★ ★ ★

Binks Manufacturing Company appointed several sales representatives: **Robert Hamlin** to Cleveland area; **J. Coughlin** to Columbus, Ohio, area; **Ed Gogin** to San Francisco; **Robert E. Moser** to Virginia territory; **Dan E. Power, Jr.,** and **William B. Crawford** to Atlanta; **A. Glines** and **A. McMillan** to New England territory . . .

MEETINGS

Vacuum Metallizers To Hold Technical Conference

The Society of Vacuum Coaters will hold its next Technical Conference on January 26 and 27, 1960, in New York City.

Authors who desire to present papers at this conference should send title and 100-word abstract to John Scharnberg, program chairman, c/o Bee Chemical Co., 12933 S. Stony Island Ave., Chicago 33, Ill.

SOCIETIES

Tri-State A. E. S. Meeting

The Fifth Annual A. E. S. Tri-State Regional Meeting was held in Louisville, Ky., on April 4. The Louisville meeting of the Region marks the first

FINISHING OVENS

THE LANLY CO.

2800 EUCLID AVE. • CLEVELAND 15, O.
WRITE FOR INFORMATION & LITERATURE

For more data circle 412 on Postpaid Card

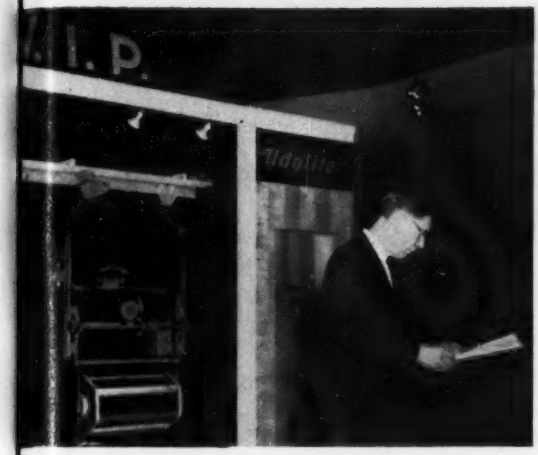


Fig. 1—William Jackson, designer of the Udylite Corporation's V. I. P., discusses its features at a special reception-luncheon held prior to the Tri-State Regional Meeting. Albert J. Lupien, Cleveland District manager, welcomed the guests on behalf of The Udylite Corporation.

complete cycle, with each of the member branches (Cincinnati, Columbus, Dayton, Indianapolis, Louisville) serving as host branch for a meeting.

The Educational Session followed the pattern of all Tri-State meetings in attracting between 125 and 160 members and guests. H. E. Head, president of the American Electroplaters' Society, served as moderator for the session which featured the following speakers and subjects:

"Mechanism of Electrodeposition with Nickel and Chromium and the Corrosion Resistance of These Deposits," by Dr. Henry Brown, Udylite Research Corp., Detroit, Michigan.

"Chromium Plating Up-to-Date," by Eugene L. Combs, Diamond Alkali Co., Cleveland, Ohio.

"Metals and Plastics for Handling Plating Solutions," by James H. Peacock, The Duriron Co., Dayton, Ohio.

A joint-hospitality reception, held prior to the banquet, was sponsored by the following cooperating suppliers:

Fig. 2—Two representatives each from Cincinnati, Columbus, Dayton, Indianapolis, and Louisville Branches make up governing body of the Tri-State Region. Shown, left to right, in session at the April 4 meeting are: C. G. Smith, The Diversey Corp., Columbus Branch; Quentin O. Shockley, Allison Div., G. M. C., Indianapolis Branch; M. Les Reynolds, Wm. Lynn Chemical Co., Indianapolis Branch; Rudolph Skriletz, Eljer Mfg. Co., Columbus Branch; Gerard H. Poll, Jr., PRODUCTS FINISHING, Cincinnati Branch; L. J. Howald, Harshaw Chemical Co., Cincinnati Branch; Holle Leuchauer, Moraine Products Div., G. M. C., Dayton Branch; Roger Winterman, Globe Chemical Co., Inc., Cincinnati Branch; R. C. Bruck, Platers Supply Co., Indianapolis Branch; Bert Hawhee, Allied Research Products, Inc., Indianapolis Branch. Standing is Hans Gerns, R. B. M. Div., Columbus Branch. Louisville Branch representatives (not shown) are: K. C. Reifsteck, General Electric Co., and James R. Smith, Louisville Metal Treatments Co.

Fig. 3—Speakers and officials concerned with the Educational Program. Left to right: Stanley J. Beyer, General Electric Co., educational chairman; James H. Peacock, The Duriron Co., speaker; Eugene L. Combs, Diamond Alkali Co., speaker; H. E. Head, A. E. S. president, moderator; K. C. Reifsteck, General Electric Co., general chairman; Dr. Henry Brown, Udylite Research Corp., speaker. (Photographs by PRODUCTS FINISHING)

Allied Research Products, Inc., Buckeye Products Co., Globe Chemical Co., Inc., Harshaw Chemical Co., Louisville Metal Treatments Co., Oakite Products, Inc., PRODUCTS FINISHING, Wm. Buchanan Supply Co., Northwest Chemical Co., Chipman Supply Co., Bill Young & Co., Inc., Frederic B. Stevens, Inc., Hanson-Van Winkle-Munning Co., Kelite Corp., McGean Chemical Co., Michigan Chrome & Chemical Co., Pennsalt Chemicals Corp., Udylite Corp., Wm. Lynn Chemical Co., Ardco, Inc., Metal & Thermit Corp.

The 1960 Tri-State Regional Meeting will be held April 9, 1960 in Cincinnati with Lee J. Howald, Harshaw Chemical Co., as general chairman.

Dr. Robert McTague Addresses A.P.F.A.

Dr. Robert McTague, Stanley Chemical Co., East Berlin, Conn., addressed the April meeting of the

Fig. 4—Banquet and dance concluded the A. E. S. Tri-State Regional Meeting. Large golden banner mounted behind the speakers' table reminds all of the American Electroplaters' Society Golden Jubilee Convention to be held in Detroit, Mich., June 15 to 19.

American Production Finishers' Association, which was held at the Yankee Silversmith restaurant in Wallingford, Conn. His topic: "Plastisols."

Dr. McTague told his audience what plastisols are, described properties, went into detail about applications for these plastic coatings. He also reported on methods of applying these products, told how parts can be coated with plastisols by knife coating methods, roller coating, molding, rotational molding, dipping and spraying.

Baker Elected Chairman of Oven Producers' Association

Robert K. Baker, assistant manager of The R. C. Mahon Company's Industrial Equipment Division, Detroit, has been elected chairman of the newly created Oven Division of the Industrial Heating Equipment Association, which was formed during the association's 13th annual winter meeting in Cleveland.

Organized to promote higher engineering standards in the industry, the Oven Division is the fourth major industry group in the Washington-headquartered IHEA. Other groups include the Furnace, Induction & Dielectric and Combustion Divisions.

Thus far, the new oven group is composed of 12 manufacturing firms, nine of which, including Mahon, are new members of the association. This group, it is estimated, produces over 60 per cent of the nation's industrial ovens.

Correction

In the April issue of PRODUCTS FINISHING, it was announced that Arthur G. Pierdon, president of Art Metal Finishing Company, Washington, D. C., is a candidate for the office of second vice president of the American Electroplaters' Society. This announcement should have read that Mr. Pierdon is a candidate for the office of third vice president of the A. E. S.

AGATEEN

OUR
32nd BIRTHDAY

Thank You

Agate Lacquer Mfg. Co., Inc.
Serving Industry Since 1927
11-13 43rd Road
Long Island City, N. Y.
Stillwell 4-0660-1

AGATEEN
THE LAST WORD IN QUALITY

For more data circle 413 on Postpaid Card

MEETINGS of INTEREST to FINISHERS

May 16. Seminar on "Precious Metal Finishing," Providence-Attleboro Branch A. E. S., Old Rhode Island College of Education Building. Banquet, University Club, Providence, R. I.

May 16. 41st Annual Banquet, Masters' Electro-Plating Association, Inc., Hotel Plaza, New York City.

May 31-June 3. 27th Annual Convention-Exhibit, Institute of Appliance Manufacturers, Netherland-Hilton Hotel, Cincinnati, Ohio.

June 14-19. Golden Jubilee Convention and Industrial Finishing Exposition, Fifth International Conference on Electrodeposition, Detroit, Mich.

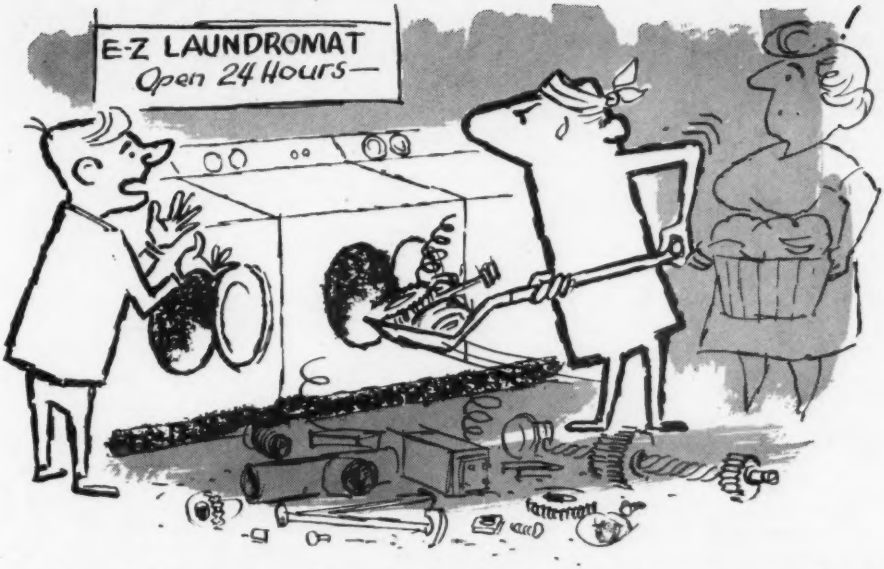
Convention Headquarters — Hotel Statler Hilton and Sheraton-Cadillac Hotel; Exposition, Artillery Armory.

June 21-26. 62nd Annual Meeting, American Society for Testing Materials, Chalfonte-Haddon Hotel, Atlantic City, N. J.

The Finishing Touch

USE NO HOOKS
DO NOT DROP
DO IT YOURSELF
FACTORY KIT
CONTAINS: PRE-FAB BUILDING EQUIPMENT: FIXTURES, FURNITURE MACHINERY CONVEYORS SAFETY POSTERS AND COKE MACHINE
STEP-BY-STEP EASY TO FOLLOW INSTRUCTIONS ENCLOSED.
EASY DOES IT

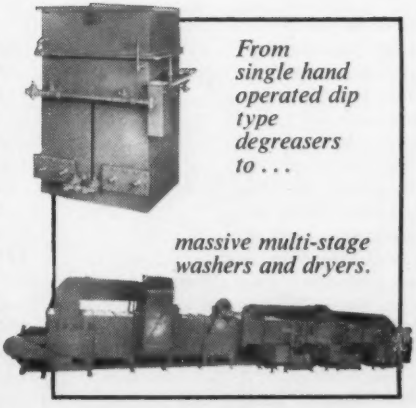
"I was hoping the do-it-yourself trend wouldn't go this far!"



But, Felmley, wouldn't a Blakeslee be more practical?

Specify BLAKESLEE Machines for Faster...Lower Cost Parts Cleaning!

Blakeslee Niagara Metal Parts Washers thoroughly spray surfaces, crevices and blind holes 100% grease-free to reduce rejects—speed up production. Blakeslee Solvent Vapor Degreasers use less solvent to clean parts of any size or shape while doing a faster, more thorough job. Most Blakeslee Machines are available with Branson "Sonogen" Ultrasonic equipment. And for additional savings specify BLACOSOLV—the fast-acting degreasing solvent with the original neutral stabilizers that prevent solvent breakdown and are carried over in the distillation process. Have your Blakeslee man make a free cost analysis of your cleaning operation—write today!



G. S. BLAKESLEE & CO.

New York • Los Angeles • Toronto

Department 104-M
1844 So. Laramie Ave.
Chicago 50, Illinois

For more data circle 414 on Postpaid Card

MAY ADVERTISERS' INDEX

Abbott Ball Co. 136
Acme Mfg. Co. ..... Fourth Cover
Acoustica Associates, Inc. 57
Agate Lacquer Mfg. Co., Inc. 157
Allied Chemical Corp.,
Solvay Process Div. ..... Third Cover
Allied Research Products, Inc. 58, 59
Alvey-Ferguson Co. 67
Amchem Products, Inc. 95
American Machine and Metals, Inc.,
DeBothezat Fans Div. 121
Atlas Powder Co., Chemicals Div. 87
Bacon Felt Co. 108
Barnstead Still & Sterilizer Co. 128
Beck Equipment Co. 91
Belke Mfg. Co. 99
Better Finishes & Coatings, Inc. 61
Binks Mfg. Co. 80, 81
Blakeslee & Co., G. S. 159
Bond Chemical Products Co. 104
Brady Co., W. H. 141
Cincinnati Cleaning & Finishing
Machinery Co. 117
Circo Equipment Co. 89
Cleveland Process Corp. 65
Cohn Mfg. Co., Inc., Sigmund 116
Commercial Filters Corp. 105
Cowles Chemical Co. 22
Crescent Bronze Powder Co. 106
David-Ludwig Co. 68
DeBothezat Fans Div.,
American Machine and Metals, Inc. ... 121
Detrex Chemical Industries, Inc. 19
Detroit Industrial Process Co. 150
DeVilbiss Co. 16, 17
Diamond Alkali Co. 78, 79
Dixon & Rippel, Inc. 151
Dow Chemical Co. 12, 13, 14, 15
Dresser Electric Co. 94
Dry Clime Lamp Corp. 84
DuBois Co., Inc. 85
Electro-Glo Co. 66
Enthone, Inc. 4
Federated Metals Div.,
American Smelting & Refining Co. 75
Fiore, Inc., Wm. M. 18
Formax Mfg. Corp. 102
Fortune Industries, Inc. 147
Fostoria Pressed Steel Corp. 119
Fusion Metal Coating Co. 140
Gardner Laboratory, Inc. 154
Gasway Corp. 90
Granco, Inc. 100
Grieve-Hendry Co. 96
Guaranteed Buff Co., Inc. 149
Hammond Machinery Builders, Inc. 7
Hanson-Van Winkle-Munning Co. 33
Harshaw Chemical Co. 3
Heatbath Corp. 92
Holland & Sons, Inc., J. 142
Hooker Chemical Corp. 137
Hull & Co., Inc., R. O. ..... Second Cover
Illinois Water Treatment Co. 123
Industrial Finishing Exposition 139
Kalamazoo Tank & Silo Co. 148
Kirk & Blum Mfg. Co. 135
Kramer Co., H. W. 86
Kushner Electroplating School 152
Lanly Co. 154
Lasalco, Inc. 55
Magnus Chemical Co., Inc. 83
Magnuson Products Corp. 98
Mard Products, Inc. 120
Mearl Corp. 77
Mechanical Process Co., Inc. 149
Metal & Thermit Corp. 8, 9
Minnesota Mining & Mfg. Co. 20, 21
Miracle Paint Rejuvenator Co. 151
Morse Mfg. Co., Inc. 148
Neilson Chemical Co. 10
North American Mogul Products Co. 126
Northwest Chemical Co. 109
Norton Co. 2
Oakite Products, Inc. 1
Parker Rust Proof Co. 114, 115
Pennsalt Chemicals Corp. 62, 73
Pioneer Rubber Co. 111
Pittsburgh Plate Glass Co. 112, 113
Products Finishing 125
Randolph Products Co. 141
Ransburg Electro-Coating Corp. 93
Rapid Electric Co. 103
Reynolds Chemical Products Co.,
Div. of Stubnitz Greene Corp. 63
Rockwell Co., W. S. 110
Sarco Co., Inc. 131
Sel-Rex Corp. 127
Sethco Mfg. Co. 130
Solvay Process Div.,
Allied Chemical Corp. ..... Third Cover
Solvents and Chemicals Group 71
Specialty Coatings Co. 101
Spra-Con Co. 132
Spraying Systems Co. 118
Sprayon Products, Inc. 11
Stevens, Inc., Frederic B. 107
Stutz Co. 70
Sulphur Products Co., Inc. 153
Syntron Co. 88
Techline Div. of Wheelabrator Corp. 97
Technic, Inc. 6
Tenax Finishing Products Co. 154
Ti-Co Industries, Inc. 153
Timesaver Sanders 133
Tousey Varnish Co. 46, 47
Trerice Co., H. O. 124
True Brite Chemical Products Co. 134
Udylite Corp. 48, 49
Unit Process Assemblies, Inc. 138
Univertical Foundry & Machine Co. 152
Vanton Pump & Equipment Corp. 122
Wheelabrator Corp. 97
Worklon, Inc. 64
Wyandotte Chemicals Corp. 69

Metal Finishers, Inc., uses Mutual Chromic Acid in its "Mecrome" plating of cylinder liners. Each liner is examined with a microscope (above). Micro-photograph shows uniformity of pockets which retain lubricating oil.

Combine your plating skill with high quality Mutual Chromic Acid

For longer-lasting, more uniform chrome wearing surfaces..

Uniform porous chrome plating in cylinder liners can increase cylinder life up to five times. To get this uniformity requires plating skill *and*–high quality Mutual Chromic Acid.

Mutual Chromic Acid is always 99.75% pure–or better. Sulfate content never exceeds 0.1%, permitting closer control of the acid-sulfate ratio in the bath. This is one reason why many of the country's leading platers specify Mutual Chromic Acid.

A booklet, "Mutual Chromium Chemicals," offers information on chromic acid and other Mutual products. Just mail the coupon for your free copy.

Mutual chromium chemicals

Sodium Bichromate
Sodium Chromate
Chromic Acid

Potassium Bichromate
Potassium Chromate
Ammonium Bichromate

SOLVAY PROCESS DIVISION
61 Broadway, New York 6, N. Y.

Allied Chemical

MUTUAL chromium chemicals are available through dealers and **SOLVAY** branch offices located in major centers from coast to coast.

Solvay Process Division
Allied Chemical Corporation
61 Broadway, New York 6, N. Y. 26-5

Please send me Bulletin #52—"Chromium Chemicals."

NAME_____ TITLE_____

COMPANY_____

STREET_____

CITY_____ ZONE_____ STATE_____

For more data circle 302 on Postpaid Card

Half a century apart...
both finished by Acme machines!

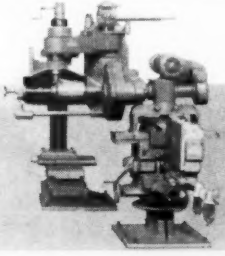
Products change but people don't, and the same gleam and sparkle that sold Grandmother still sells consumer goods today. The finishing touch may be last but it is far from least, and is often loaded with problems. That's where Acme engineering skill comes in—and has, for fifty years.

Half-a-hundred years of experience is built into both kinds of Acme automatic equipment—the versatile standard units which are completely adjustable to product changes, and the custom-built units which convey and hold the work. Acme engineering skill combines them to make polishing and buffing machines capable of handling almost any finishing problem.

Whether you're interested in a completely automatic setup or a single versatile machine, take the first step toward reducing finishing costs and increasing production volume. Send for our new illustrated 16-page catalog today.

50 years of *Polishing Off* your finishing problems

OPEN HOUSE AT ACME DURING THE AES Convention IN DETROIT — JUNE 15-19 — DON'T MISS IT!



Multi-adjustable Acme G-4 standard lathe is flexible basic unit, used by itself or with complex work-conveying arrangements.

ACME MANUFACTURING COMPANY

1400 E. 9 MILE ROAD, DETROIT 20, MICHIGAN

LEADING PRODUCERS OF AUTOMATIC POLISHING AND BUFFING EQUIPMENT SINCE 1910

For more data circle 303 on Postpaid Card